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The JOURN
ACCOUNT

OLUME LII

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THE JOURNAL OF A
Pub
Edited and Co
President, CARL H. NAU
1324 Prospect Ave.
Cleveland, Ohio
Entered at
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THIS MAGAZINE

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When you notify THE JOURNAL OF ACCOUNTANCY of a change of address, both t old and new address should be given. Kindly write, if possible, so as to reach the publish by the fifteenth day of the month.

BULLETIN *of* AMERICAN INSTITUTE OF ACCOUNTANTS

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Subscription Rate — Only $1.00 a year

THE JOURNAL OF ACCOUNTANCY, *Incorporated*

135 Cedar Street, New York, N. Y.

The JOURNAL *of* ACCOUNTANCY

Official Organ of the AMERICAN INSTITUTE OF ACCOUNTANTS

A. P. RICHARDSON, *Editor*

[*Opinions expressed in* THE JOURNAL OF ACCOUNTANCY *are not necessarily endorsed by the publishers or by the American Institute of Accountants. Articles are chosen for their general interest, but beliefs and conclusions are often merely those of individual authors.*]

VOL. 52 OCTOBER, 1931 No. 4

EDITORIAL

Our Brobdingnagian Past

There are merits and advantages in this depression about which so many tears are shed and such lugubrious moanings are uttered. It is not all bad, nor even all sad. If one knows where to look—or, better yet, knows how to look—he may find some very pleasant spots down here in the shadows of the valley. The sun may not shine so brightly as it does on the heights, but it does shine and there is a good deal of cool shade about us where we may rest for a while before we set out to climb the next hill of prosperity. Many of us are learning what we had forgotten or perhaps had never known before. We had been striding along on the hills so long that we had overlooked the valleys, without which there can be no hills at all. We had held our heads so high that we had not been able to see the beautiful things beneath our feet. We imagined ourselves giants greater than all other men—we who had accomplished such vast success. It was quite certain that the wealth and the glory of our achievements were wholly the result of our own overwhelming ability. We were the people and wisdom would die with us. Anyone who had a dollar could make of it two, and of the two four, and so on indefinitely, we thought. It was all so easy to us in our great strength and stupendous knowledge. We could not do wrong. We could not fail. We felt that the rest of the world must derive a healthy spirit of emulation from the mere sight of our tremendous accomplishment.

It was enough to arouse the backward peoples to renewed hope simply to see us as we went our way from height to height. We were very great indeed. All men who came before us and all who would attempt to follow after us would surely marvel as they beheld the might and infallibility of us.

It is Kindlier in Lilliput

Now that sense of transcendent importance is apt to be a little wearying to our friends and neighbors. Furthermore, it is awkward when the inevitable fall occurs. People are going to say "Aha, aha." The higher we go, the lower and the faster the descent will be. However, there always is the ebb where there has been the flow, and now that the ebb has reached, and probably passed, its time of lowest tide, it is well to look about and see what is to be seen. The lamentations are diminishing. Bitterness is left behind. We are finding some rather cheery things. The treasures of the sea are revealed at low water. What are these pleasant things? Well, for instance, let us consider the greater kindliness which is evident everywhere. When one has been threatened by starvation he can sympathize with those who are hungry. We may not have so many dollars to give as we had, but we are giving more in proportion to our income—at least the reports of many eleemosynary institutions indicate that. And anything, even distress, if it makes for greater kindliness, is well worth while in the long run. The world can absorb an enormous amount of that nourishment without becoming over-fed. The kindliness is to be found on all sides. Even if the danger of actual want be far removed, it is visible to everyone, and he or she who rides in state has learned to look with friendly eye and a certain anticipation upon those who stand and wait. There is less arrogant assurance, less willingness to admit superiority. It affects us all from the lowest to the highest, this sense of humanity. And, if there be no other good from all these months of fear, we can at least be thankful that they have cleared away the mist of imagination and shown everyone the stark reality.

We Have Leisure

Then there is the question of leisure which has to be considered. There was once upon a time a deal of respect for leisure and its appurtenance.

Men and women in those halcyon days used to think of their leisure as a blessed factor in the sum of their lives, and they studied to employ it for betterment of mind and the cultivation of civilization. They were good, quiet old days when men and women could sit and read and think—and then talk; for talking, after reading and thinking, becomes a fine art, in contradistinction to that kind of talking which is unprepared and founded upon nothing but vacuity. Men and women knew how to play and to make the most of the world in which they lived and moved and wrought beneficently. But when work, which is meant to be only a little part of the scheme of things, became a god instead of a servant, and wealth was the head of the pantheon, we had no time for leisure. It was locked away in a cupboard, of which the key was nearly lost. We rushed about in a wild scramble for something which we did not exactly define, and we had no opportunity to think of the amenities. Even if we left office or exchange for an hour or so, we feverishly labored at an artificial substitute for genuine recreation and fun. We worked very hard to play and could not find the secret of it, for that was locked away in the cupboard with leisure. But when there was no more work and, perhaps, even the office had ended its régime, we began to remember leisure and we sought for the key to let it out again. We had more time than we knew how to use.

And Are Learning Its Use

Forced idleness is not the happiest form of leisure, but in lieu of any other it serves a purpose. It would be far better if rid of the accompanying dread and want, but perhaps out of the necessity to pause may come an ability to employ the interim. Folk of some other lands know how to play and to enjoy life far better than do the Americans, and they get as much out of their little span as we, because they really put more into it. The British people talk of the "leisured classes" and that is an unfortunate expression because the word "classes" is abhorrent to every true democrat. (Do any true democrats survive the shock of their severely shaken form of government?) It would be better to speak of leisured people, irrespective of class or caste or position. Everyone is entitled to a fair share of leisure and is to be encouraged to make the most of it. There is, however, a difference between leisure and doing nothing. It is often ignored

and the two conditions are regarded as the same. The leisure of any man is a vitally important part of his life and happiness. Someone has spoken of leisure as the margin of life, but it is more than that: it is part of the text. The compulsory leisure of the present season is not enthusiastically greeted, but it may be a godsend nevertheless. It may acquaint us afresh with the possibility of making good use of time which is not scheduled, plotted, laid out with mathematical precision. It is recorded that during the rush and turmoil of the so-called prosperity, men would measure their golf or yachting by the hour or the minute. They were miserably afraid that a seven at the eighth hole would interfere with an engagement to discuss business. Can that be sport? We have more time now, and a seven, or even a ten, will not conflict with trading. Probably all games, as well as the game of life, have been helped in point of true sportsmanship by the dull times.

Reversion to Courtesy

There is another blessed effect of the depression—but depression is a vile word. Would it not be better to say our time of adjustment? Whatever it be called, it makes for courtesy, which is something quite apart from the kindliness about which we have been thinking. One may find courtesy where experience had led one least to expect it. It is even reported that in retail shops there has been an attempt to return to the courteous old customs of fifty years ago, when the people who were selling to the persons who were buying felt a sense of something almost like hospitality, and the prospective purchaser was really welcome. It is on record, written by unimpeachable authority, that in certain shops everyone has been polite to every shopper. Now that is a great change, at least in metropolitan ways. It will seem strange not to be kept waiting while the amorous activities of the preceding evening are fully rehearsed by the staff of sales folk. Perhaps we shall come to a time when it will be possible to go into a shop and buy something quickly and walk away contented without a memory of supercilious inattention. In even stranger places the same alienated spirit of courtesy is returning. Conductors of street cars, drivers of omnibuses, newsboys, factory hands are walking softly. They have time to reply politely to their employers. It is quite remarkable and it is true.

Even Thankfulness Appears

And there is a further thing coming up out of the mists of hard times, and that is the spirit of thankfulness. We do not today take what is given us as a matter of course. We are almost inclined to say, "Thank you." Some of us even go so far as to say, "Thank God, we have work." We are beginning to follow the admonition of the hymn writer and to count our blessings. It is a pleasant pastime and healthful. There are so many things in which we may rejoice that it is well to have time to look at them and count them and set them down in the catalogues of mind and memory. If those of us who think we are undergoing dreadful ordeals today would visit some of the less favored countries and spend a little while, we should come back and admit, if we were truthful, that what we consider sorrow or hardship is the very quintessence of gladness and peace. This little interval between our prosperities gives us an opportunity to think about all these things. Probably if we could raise ourselves to a point above the near circumstance we should be able to look down with better perspective and be able to value properly success and failure, as we count failure. If one could step ten years into the future and look back to 1929 and 1930 and a part of 1931, he would probably say, "During those years there was a let-down in energy and there was great fear and trembling, and yet it was a good time and everything was making ready for the better time that followed it." We can't step ten years ahead, but even here we may admit, if we are honest, that there are many good things down here where the shadows are long and the hillsides high above us.

Our Lack of Detachment

One of the chief troubles, of the many which beset us in our essay to set our feet on the path up from the depths, is the inability of each one of us to forget that the burdens which each carries and the haze before the eyes of each are not common to all. The man whose thoughts turn to the buying and selling of securities—though why some of those paper pledges are so called no one knows—thinks that the whole whirl of nature turns upon the wheel of the stock ticker. The stars in their courses are checked or sent spinning onward as the bears or bulls roar the louder. The village cobbler in Pile o' Bones can not see the coming of prosperity while the price of beeswax is high. The housewife of Jonesburg knows that no good can come with mutton chops where

they are. The farmer of Big Breeze County is quite well aware that the grasshopper is kicking prosperity away into Canada. The Democrat can explain why the administration is playing the devil with our ducats—and the Republican could do as much if he were out of office. And in Wall Street everyone knows that the sun will not shine upon even an acre of the globe while the stock market wallows in the slough. We are overwhelmed by the importance of the things which are close before us—things which our neighbors perhaps can not see at all. It is only among the wise men that broad vision is—and the wise men are so scarce that the store of their knowledge is not enough to supply all of us. So we grope behind the motes in our eyes and wonder where the light of day has gone.

There Is Territory Beyond Wall Street

That is why so many of the men who stand weeping in Wall Street are not to be comforted. They can not see over or through the walls of that well-named alley, and they think that the precession of the equinoxes is ordained by the rise and fall of prices of things which in themselves have no intrinsic value at all. So it is quite probable that one will hear a group of bankers or brokers or speculators discussing the hard times and laying the long duration at the door of the market. Yet these very men know well, if they study the history of the financial tides, that the market never does anything but follow. It never originates a movement of any kind. When business as a whole goes forward the market lags behind and never catches up until the progress has been checked. And when there comes a time of recession, of hesitation, it is never known to the stock market until the halt is nearly ended. This is not fond theory; it is demonstrable. And it does seem rather ridiculous to beat the breast and cast ashes on the head at the Wailing Wall Street, simply because the market is doing what it has always done. Now there are goodly signs of having passed the deepest point. Surplus stocks of merchandise of most kinds have gone. Shelves are empty. Some of the so-called basic commodities are superabundant, but what mill and factory make must soon be in demand. Stock exchanges and their devotees can not change the great swings of dearth and plenty. All they can do and will do is to follow after, a rather long way after. There is nothing especially gladsome about the present prices of stocks and bonds, but it might be a good plan to

try to look away from the ticker tape and see what is happening where the world is at its business of marching on.

Salvage from Oblivion

It is the custom in every well-regulated office—and who will admit that his office is not well regulated?—to consign to the waste-paper basket all anonymous correspondence, but sometimes it is entertaining, if nothing else, to look at this correspondence as it passes on its way to the ultimate destination. There are several forms of anonymity. For instance, there is the young man who signs an almost illegible name and forgets to give his address. Then there is the man whose signature is totally illegible and his address is merely the name of a city. And there are various other ways of avoiding identification. It is not important, however. As a rule the man who has something to say is not afraid to say it and to admit that he is saying it. Among those communications which were traveling the steep descent to the waste-paper baling machine was a letter signed by someone whose last name is charmingly vague. Let us listen:

> Why don't you own up to the fact that the accountancy profession today is nothing more than a racket?
>
> A very large accounting firm, for whom I am now working, has among its members men who are acquainted with officials of several banks. These men from our office continually hang around these banks. When a new account is opened in the bank, the official of the bank immediately introduces the depositor to our representative. This bank official advises the depositor to retain our firm accountants, with the advice that it will help the depositor materially in obtaining credit from the bank.
>
> I do not believe that these officials render this service to our firm for nothing.
>
> . . . . .
>
> I dare not give my address for I am sure that I would lose my job if I did so.

This is a silly, spiteful letter in some ways, but there is about it enough of argument to merit a little thought. There may be accountants, so-called, who pay commissions to bankers, and there may be bankers who accept bribes. Anything of this kind is possible in any vocation. But it would be wholly astonishing to learn that such a practice was common.

Another Voice from the Darkness

And another man, who admits that he is a citizen of no mean city, sends a clipping from a newspaper, advertising for a certified public accountant to start work at a salary of $2,500. The correspondent can not be identified. He says:

> The writer has been with some of the large firms of certified public accountants and knows what the situation regarding the employment of staff assistants is.

Such firms don't want Institute employment bureau college men at $125 a month. They want men who are willing to work for $75 per month to do mere clerical work. They want the burden of the engagements on the shoulders of seniors with C. P. A. titles who are willing to work for $2,500 per annum as the advertisement is proof of.

There may be racketeering in the building and other industries but the large scale professional service contractors such as the certified public accountants in many instances are getting to be racketeers of the worst kind and you can rest assured all those men who leave public accounting work and go into private practice are well aware of this fact. There is nothing which brings such disrespect for public accountants as this very thing. Won't you please either publish this letter in the JOURNAL or make comments on it therein or in the monthly BULLETIN to Institute members? If this thing doesn't stop the writer is going to bring it to the attention of the American Bankers Association, the Robert Morris Associates, the National Association of Credit Men, and the important chambers of commerce in the United States, and you can be sure it will be the most thorough sock between the eyes that the public accounting profession has ever received in the United States.

This man is simply absurd. We have published the letter—and, as we do not expect the mere fact of publication to bring about transformation in the whole scheme of things, it may be brought to the attention of the associations mentioned by the writer of the letter. Then the public accounting profession is to receive that "most thorough sock between the eyes." One would think that an employee of an accounting firm would have sufficient knowledge of accounts to realize that it is not possible for accounting firms to pay the men who work for them all that they receive for the work which those men do. Does our correspondent overlook the little item of overhead, and would he have the members of firms conduct their practices without compensation at all? Overhead in an accountant's office is not what it is in the case of factories or mills, but it has to be met. It is true, undoubtedly, that in some cases the salaries paid to staff accountants are unreasonably low. Some firms have been guilty, and perhaps some still are guilty, of injustice to their employees. Everyone who has the interests of the profession at heart deplores this condition, but it is not common. For the most part accounting firms are fair to their men, and it is usually found that those who make the most complaint are those who do the least work. The trouble with the writers of the two letters that have been quoted is that they are in love with the word "racket." Many people today think about "rackets" and imagine them whether they exist or not. There may be a "racket" in accountancy, but the income of the average accountant during the past two years does not indicate that it is sufficiently profitable to be worth while.

An Old Friend Revived

Now comes another correspondent who adopts the altogether original pen name "Pro bono publico," and he writes from a city where flour is wont to be made. He says:

> The local manager of a nation-wide accounting organization informed the writer that they do not employ anyone over thirty years of age. On the face of present conditions such a policy should receive the greatest condemnation by all right-minded persons. There are a number of experienced accountants here over thirty years old who simply can not find employment and no attempt is being made to stabilize things and divide the work, where it exists. During the winter rush, men of experience and mature years are preferred in other firms where there is real work to be done, but last winter there was, alas, no rush. There is only one thing to do. Let those who have been drawing their salaries for years without a break take a good long vacation and give others a chance of earning even a part of their living expenses.

It is impossible to avoid a feeling of regret for the idleness of "Pro bono publico." He is writing seriously, although it is difficult to believe it. He seems to expect someone to resign and make a place for him. It is impossible to think of a more naïve suggestion. But even if there were an inclination to such an act of self-abnegation, what would the employer say? However, we need not worry greatly about that, for we have not come into the land of heart's desire.

Power Costs

In this issue of THE JOURNAL OF ACCOUNTANCY we begin the publication of a series of three articles by John Whitmore. These articles deal with various aspects of the cost of power, and they discuss in a way which we believe to be quite original some of the most important factors in such costs. There is far too great a tendency to overlook the amount of waste which may occur in the creation and distribution of power, and Mr. Whitmore, with his long experience in various important industries, speaks with an authority which is worthy of careful consideration. We are confident that these articles will be read profitably by all who are interested in questions of cost.

American Institute of Accountants

REPORT OF THE PRESIDENT*

By Charles B. Couchman

In any line of activity it is seldom that accomplishment equals desired results. It is to be expected, therefore, that as your president looks back over the year of administration, he should feel that he has failed in some respects to accomplish all he had hoped for. On the other hand, he has experienced the pleasure of seeing many plans work out more satisfactorily than he had dared to hope. This has been due, not so much to the efforts of the president, as it has been to the initiative, the keen foresight, and the intelligent ability of those who have been associated with the administration in various capacities.

The administration this year has been concerned with maintaining the functions of the Institute which have given it its pre-eminent standing in this country. In addition, we have laid major emphasis upon two purposes. The first was the development of increased publicity for the American Institute of Accountants and for the control exercised over the ethics and practices of our membership, for which the Institute has long been distinguished. We feel that we have had marked success in the accomplishment of this purpose. The second purpose we have emphasized, has been to lay the ground work for an enlarged field of activity for the accounting profession. In this, again, we feel that we have made great head-way. Naturally, in both of these lines of endeavor, there remains opportunity for development far beyond all that has been accomplished in the past. It lies with future administrations to take advantage of these opportunities and to bring the profession of accountancy to a higher plane of usefulness and to a wider recognition than has heretofore been accorded to it.

In the early days of accountancy in this country the work of organizations and individuals was largely devoted to internal affairs: legislation, standardization of technical procedure, development of canons of ethics and provision for the education of aspiring accountants. Today our own house is in fair order and we may turn a larger part of our attention to the development of

*Delivered at the annual meeting of the American Institute of Accountants, Philadelphia, Pa., September 15, 1931.

relations with the public. Feeling as keenly as I do the importance of this phase of the general programme, I have made every effort during this year of my office to attend meetings where I might have an opportunity to speak about the work of the Institute and the problems and accomplishments of the profession as a whole. Since my election in September, 1930, I have spoken before audiences of accountants, students, bankers, lawyers and business men in the following places: Salt Lake City, Spokane, Seattle, Portland, San Francisco, Los Angeles, Dallas, Tulsa, Pittsburg, Hartford, New York, Cleveland, and Skytop, Pennsylvania.

The executive committee has authorized the president to accept an invitation which, I believe, will involve creation of a new precedent—an invitation to speak over the radio on some subject which will relate accountancy to finance. Another new precedent may be established by a joint meeting of accountants, investment bankers and stock-exchange members which has been proposed for the late fall.

I have been pleased to find that the work of the Institute has become so well recognized that we are receiving constantly increasing publicity from newspapers and magazines. These periodicals appreciate that the various pronouncements of the Institute are of interest to a large percentage of their readers.

I shall not attempt to mention all the activities of the Institute during the past year but refer you to the various reports to the council which will be published for your information. I urge you to read them. You will be able to derive from them a sense of the great influence which your organization is exercising over professional affairs. In many cases the accomplishments that are reported represent only a small portion of the work that has been done, as plans have been laid for much greater accomplishment in the months to come. As an illustration, the committee on coöperation with stock exchanges has accomplished some very definite results, but in addition this committee and the committee from the New York Stock Exchange have before them technical problems of far-reaching effect upon the profession which will no doubt be worked out to a successful conclusion as the result of further consideration and discussions.

Our profession has reached a stage where there is necessity for some general pronouncement from the profession upon many technical procedures with regard to which, in the past, the indi-

vidual practitioner has had to rely upon his own judgment only. These are being presented to us in increasing numbers by practitioners, investment bankers, governmental authorities and stock exchange committees, all of whom look to the Institute as the proper source of aid in the determination of solutions to these problems.

In the year just ended business has been wandering in the valley of desolation and gloom. Accountants, true to their trust, have been compelled to follow, marching hand in hand with their clients through the dark canyons of depression. It would be natural to expect that this would result in a considerable decrease in our membership, owing to the rigidity of our by-laws concerning the prompt payment of dues. I think, therefore, that we can take great pride in the fact that our numbers have been well maintained. There is a steadily increasing list of applications from alert accountants who are realizing the pleasure of having a part in the work which the Institute is doing.

This year has meant much to me. Formerly, standing outside of the administration, I had seen fit to wonder as to why many things were done as they were done. It was my privilege to criticize and to suggest, at least to myself, improvements that might be effected. Today, after opportunity of studying many of these questions from every angle, I feel it my duty to voice my deep respect for the previous administrations which have built soundly, with profound knowledge of what was best for the profession; which have not been influenced by suggestions and demands based upon only partial knowledge of the principles they proposed to enact; which have been willing to fight for procedures in the face of adverse criticism and whose wisdom and foresight have been justified by the events that have transpired.

I do not claim that any administrations have been perfect, nor that the time may not come when some of our policies should be changed, but I am impressed by the realization of how firmly the Institute has been builded upon those principles which tend to the greatest good to the profession and to those whom we serve.

It has been a great honor to work for an organization which is so unselfish in its activities. Every great effort which the Institute has put forth for the benefit of the practitioner of accountancy has been an aid to every such practitioner whether he does or does not belong to our membership. Even the accountant who

is more interested in criticizing the Institute than in helping its work has been benefited just as much by our activities as have those who have given freely of their time, their money and their ability to aid our programme of accomplishment. I desire to repeat that it is an honor to serve such an organization.

Power Cost Accounts

I. STEAM

By John Whitmore

> "If we were keeping a set of books, we would charge against the boiler house every pound of coal or gallon of oil delivered to the bunkers or tanks. On the other side of the book we would credit the boiler house with every pound of steam generated in the boilers. But to do this we must necessarily have some unit of value common to both steam and coal, so that one side can be checked against the other. The heat units in the steam and the heat units in the coal provide us with a common unit of value." (Beard, *Industrial Management*, July, 1923.)

The purpose of factory cost accounts is to measure the economy of manufacture and consequently to measure wastes. Economy in the use of materials and labor have long received what may perhaps be called almost universal attention. Other expenses of manufacture have doubtless been given much thought, but they have certainly not been subjected to the same strict accounting. If the relative importance of the different expenses furnished a reason for this in times that are past, it cannot be said to do so in the present. The expenses often in the past thrown together and called "overhead" have been growing in individual importance. This is particularly true of the expense of power. A study made a few years ago by the National Industrial Conference Board resulted in the statement that between 1899 and 1923, installed primary power for industrial purposes in the United States increased 236 per cent., while the number of wage earners increased only 90 per cent. It is probable that these percentages have moved even farther apart since then.

In the past few years the costs of generating power have been greatly reduced, and the results achieved have been given wide publicity in current engineering literature, so that new standards have been made available for quite general use. Especially this has been true relative to fuel values and the efficiencies of boiler operation and the operation of prime movers and generators, and the cost of the kilowatt hour of electrical energy. Beyond this point, however, there are two considerations of weight for the individual manufacturer. The first is that power economy is not only economy in the development of the unit of mechanical or electrical energy, but in all the further uses of steam, and in

all transmissions and applications of power; and, second, that the conditions of economy can scarcely be the same in any two manufacturing plants.

There is a further consideration, always to be borne in mind. The generation and transmission of power are operations complete in themselves, the product of which cannot (with certain limited exceptions) be stored, but which flows continuously into other operations. The product of the power plant must be delivered continuously, reliably, and in the varying measures in which it is needed, for the other processes of the factory. The final test of the economical operation of the power plant is not merely in the cost of its product, but in the degree of the precision of its service.

I believe that, supplementing all the work of power engineers, power cost accounts are essential to ultimate power economy in industrial plants, as they are essential for the purpose of charging the costs of power to the various processes and products with any approach whatever to accuracy.

It is my purpose therefore in these articles to consider the bases and the processes of power cost accounts, from the purchase of coal, which is the fuel of the great majority of factory power plants, to the application of power in the manufacturing processes.

COAL

The first accounts to be kept are the coal storage accounts. These should be of the type common to materials which have these two characteristics: first, that they carry varying quantities of moisture, and second, that their value is not in their total bulk, but in certain qualities and contents which can be determined and stated. In the case of coal, the contents upon which the accounting is to be based are expressed as British thermal units. But beyond the British thermal units, or potential heat value, there are other qualities of the coal which have their important effects upon the economy of the boiler operation. All of these must be taken into account in considering the justification of the expense of sampling, analysis, and the maintenance of records.

In controlling, comparing and judging the results in smelting processes, the complete analyses of the ores are to be watched for all the influences which are affecting the operating results, and they will not be so watched unless they are tabulated in such

form that the observing of them is facilitated. I believe there is here an exact parallel between the operation of the smelting furnace and the operation of the boiler furnace.

The methods of sampling, crushing, combining and quartering down, to obtain a final sample for analysis, both as to coal received and coal fed to the boiler furnace, are well known. The frequency of sampling and the extent to which samples may be combined, depend principally upon the uniformity of the quality of the coal, and naturally to some extent upon the quantities consumed. Power engineers have said that every car received should be sampled, and that of the coal fed to the boilers frequent sampling throughout the day should be made, and that sometimes the analysis of each daily sample is advisable, and that in no case should the daily samples for more than one week be combined for analysis.*

The first analysis by which the value of coal is determined, called the "proximate analysis," i. e., the separation of the coal into its constituent compounds,† is as follows, by percentages:

Moisture
Volatile matter
Fixed carbon
Ash

Then there are separate determinations for:

Sulphur
Fusion point of ash
Heat value of coal in British thermal units per pound

Moisture is, of course, water content, the percentage of which is to be deducted from the gross weight to give the weight of dry coal. Ash is incombustible material, for which nevertheless all expenses in connection with the coal from receiving to feeding to the boiler furnace are incurred proportionately, and beyond the furnace operation there is the expense of ash removal. Ash, also, in proportion to its own quantity, will carry away with it more or less unburnt coal. A minimum of 5 per cent. ash is said to be necessary,‡ but boiler coals contain up to 20 per cent. ash.

* Beard, *Industrial Management*, December, 1923. Gibson, *Industrial Management*, December, 1925.

† There is an "ultimate analysis" into chemical elements, with which we are not immediately concerned.

‡ Gibson, *Industrial Management*, September, 1926. Kreisinger and Cross, *Industrial Management*, December, 1928, state different percentages of desirable ash, dependent upon the method of firing.

As regards sulphur I quote: "Sulphur should not exceed one per cent. Excessive sulphur will corrode all iron or steel which may come in contact with the gases of combustion."* And again "A high sulphur coal is the enemy of all grates and those stoker parts exposed to the heat of the furnace." † Volatile matter is valuable fuel gas, but if present in excessive quantity may be disadvantageous in operation, or under unsuitable conditions may be largely wasted.‡ As regards the fusion point of ash, I quote again: "A coal with a fusion point of ash too low for the conditions under which it is burned will cause serious losses, even to the shutting down of the plant." § The British thermal unit is the heat required to raise the temperature of one pound of water one degree Fahrenheit.||

The foregoing I think establishes the importance of a sufficient series of analyses of coal received. The necessity for analysis of coal fired, beyond the moisture determination, may depend upon the manner in which analyses of coal received are recorded, and upon how far the methods of storage permit the identification of the coal going into consumption with the original analysis of the same. There is also enough in the foregoing quotations, and much more in the sources quoted from, to suggest that the economies of different coals may not be very satisfactorily compared, unless beyond the comparison of all other costs there is allowance for difference in expense of repairs consequent upon using different grades of coal.

I have referred to the advantage of such storage, and such records of coal in storage, as shall furnish ready identification of the coal going into consumption with its original analysis. There are, in addition, other considerations which should in their respective measures govern coal storage methods. Fairly frequent clean-ups are necessary for the final verification of quantities reported consumed: there must be limits to the quantities stored without the separations which make clean-ups possible. The construction of bins of the proper size and character for the storage of coal is almost surely a great economy in the long run, for the reasons above mentioned and to guard against loss of heat

* Gibson, *Industrial Management*, September, 1926.
† Beard, *Industrial Management*, November, 1923.
‡ Myers' "Factory Power Plants," *Engineering Magazine*, 1915, page 72; and Gibson, *Industrial Management*, September, 1926.
§ Gibson, *Industrial Management*, September, 1926; also Beard, *Industrial Management*, November, 1923.
|| This is not exact at all temperatures, but it is practically exact within the range of boiler feed water temperatures. In the steam tables, hereafter referred to, the B. t. u. content of the pound of water is exactly the temperature of the water less 32, for the single temperature of 212° only.

value from different causes.* As far as possible only coal of a substantially uniform character should be placed in a single bin.

The coal storage ledger may now be ruled as follows:

STORAGE NO.....

DEBITS

Inv. No.	Date	From	Inv. wt.	Price	Amount	Wt. Rec'd	% Moist.	Dry wt.	Freight		Inclusive cost dry ton
									Vo. No.	Amount	

ANALYSIS							CREDITS								
% Vol.	% Fixed carbon	% Ash	% Sulph.	Fusion point ash	B. t. u. per lb. dry	Total B. t. u. (100,000s)	Date	To	Gr. wt.	% Moist.	Dry wt.	Per ton dry	Amt.	B. t. u. per lb. dry	Total B. t. u. (100,000s)
						†									

If the analyses are thus recorded against the debits of coal received, it is only necessary to turn to the coal stores ledger page for the coal being used, to have all its characteristics plainly before one.

There are various means of weighing coal to the boilers, the best of which are automatic scales recording the weight of coal fed to each boiler separately.

We are now at the point where coal is fed to the boilers, its quantity and all costs per ton to this point known, and its heat value known. And nothing has been done (I was on the point of saying with the exception of a little clerical work having a trivial cost, but I doubt even this exception) beyond what is necessary to the engineering control of the boiler operations.

WATER

If water were fed to the boilers, for example, as purchased from a water company, it would merely be necessary to charge the

* Beard, *Industrial Management*, August, 1923.

† 100,000 B. t. u. corresponds to 7 or 8 pounds of coal, and seems to me convenient. A unit of 1000 B. t. u. is used, called the kilo B. t. u. with the symbol kb, and 1,000,000 B. t. u. called the mega B. t. u. with the symbol mb. (*Marks' Mechanical Engineers' Handbook*, page 1125.)

boilers with the portion of the water company's bill corresponding to the quantity of water metered to the boilers. Two things, however, may and probably will, intervene. These are purification of the water and preheating of the water.

The subject of the purification of boiler feed water has been dwelt upon at length for many years and in many places. It will suffice here to quote the opening sentence in the article on the subject in *Marks' Mechanical Engineers' Handbook*, 1930, page 1136: "The purification of feed water and the maintenance of the proper boiler-water conditions are essential to the efficient operation of steam boilers. The troubles to be guarded against are scale, corrosion, caustic embrittlement, foaming and priming." We may assume therefore that the power cost accounts will include expenses of feed water treatment. Such expenses will include labor, power, chemicals (as drawn from stores and used), laboratory charges, and repair and amortization reserves for the purification plant.

The preheating of the boiler feed water leaves less work for the boilers to do, and consequently increases their capacity.

The supplying of hot water to the boilers is accomplished in various ways. If the engine is condensing, the water from steam condensed is returned to the boilers, containing more or less heat according to the temperature of the exhaust steam condensed. If the engine is non-condensing, the exhaust steam, containing somewhere in the neighborhood of 90 per cent. of the heat in the steam as delivered to the engine, may be used to heat the boiler feed water. Or the exhaust steam may be used for various manufacturing processes and for factory heating.

The heating of the boiler feed water may be accomplished by secondary uses of the heat from the boiler furnace, and before the water enters the boiler proper. The boilers may be equipped with economizers in which the water is heated by means of waste gases from the boiler operation. Or the boiler furnace may be water-cooled and water for the boiler heated thereby.

If the boiler feed water is heated with heat that does not belong to the boiler at the time it is used for the purpose, such heat must be charged to the steam production and credited to the power plant operation furnishing it. The temperature of the boiler feed water is to be determined and recorded after such heating. But if it is heated by secondary uses of heat from the boiler furnace, as by means of an economizer, the heat belongs to the

boiler, and the temperature of the feed water is determined and recorded before such heating.

It is desirable that both water to the boilers and steam from the boilers be metered, but if only one of these is metered, the quantity of the other can with due allowances be calculated. The weight of water evaporated and the weight of steam produced are the same, but not quite all the water fed to the boilers is evaporated. The difference is said to be due to "leaks and blowdowns."

The heat content in British thermal units per pound of water at the various temperatures respectively, are given in the steam tables in *Marks' Mechanical Engineers' Handbook.* For feed water temperatures they are always approximately, and at one point (as already noted) are exactly, the temperature of the water less 32° (the degrees Fahrenheit for which the heat units are 0). The figure given by the steam tables has merely to be multiplied by the pounds of water to ascertain the total heat content of the water as fed to the boilers.

In the steam tables, however, heat content is stated on the basis of the zero point for heat being 32° Fahrenheit. For power accounting purposes I believe some temperature corresponding to the average temperature of water entering the plant, or the average temperature of the atmosphere, needs to be substituted. The heat content of water or steam between 32° Fahrenheit and such average temperature (which may perhaps be taken to be 60°) has neither cost nor recoverable value, and should not enter into the determination of the price at which water or steam is to be credited to one process and debited to another in the course of the accounting. For this is what occurs, if the steam cost at the boilers is divided by British thermal units representing all heat value over 32°. A unit value below actual cost is determined, and (to illustrate) a non-condensing engine, with a net debit (assuming uses within the plant for all exhaust steam) for only the difference between heat value in the steam entering the engine, and heat value in the exhaust, is charged below the cost of its consumption.

I suggest therefore that the theoretical heat value in water entering the plant (the difference between 32° and actual temperature) be disregarded, and that the heat values of boiler feed water and steam be calculated on the basis of 60° as zero point for heat. This involves the deduction of the theoretical heat content

between 32° and 60° from all steam table British thermal unit figures.

STEAM

We have now considered the boiler feed water and its heat content; and the coal burnt and its heat value. It remains to consider the quantity of the steam produced, and the heat content of the steam. It is necessary to complete the two sides of the boilers account, as the latter is described in the quotation at the head of this article.

Steam is of two characters, called respectively saturated and superheated. Saturated steam is the immediate product of evaporation. Its temperature corresponds to its pressure: if either is known the other is known. The temperature at which water evaporates depends upon the pressure under which evaporation takes place. At sea-level, where the atmospheric pressure is 14.7 pounds to the square inch, the boiling point of water is 212°, but at any point above sea-level, with atmospheric pressure less than 14.7 pounds to the square inch, the boiling point of water is less than 212°, atmospheric pressure and boiling point always corresponding. So with boiler pressures above 14.7 pounds to the square inch, the evaporation point, that is the temperature at which water changes into steam of the same temperature, is above 212°, boiler pressure and temperature always corresponding.

If water is fed to the boilers below the evaporation temperature under the existing pressure, the task of the boilers is first in raising the temperature of the water to the evaporation point, and second in changing the water into steam of the same temperature. The heat added in the first becomes sensible heat first in the water and then in the steam, and the heat used in the second becomes latent heat in the steam. It is spoken of as the "latent heat of evaporation." * The quantity of the latent heat of evaporation depends upon the temperature at which evaporation takes place. In evaporation at 14.7 pressure and 212° temperature, the British thermal units which become latent heat are 970.2, and the heat content of a pound of steam is 212−32+970.2 or 1150.2 B. t. u.

* "Latent heat is the heat which apparently disappears in producing some change in the condition of a body without increasing its temperature. . . . It is not lost, but reappears when the substances pass through a reverse cycle, as from a gaseous to a liquid state. . . . In the conversion of water into steam, it is expended in overcoming the molecular cohesion of the particles of the substance, and in overcoming resistance of external pressure to change of volume of the heated body." (*Steam—Its Generation and Use*, Babcock & Wilcox Company, 1916.)

As pressures and temperatures rise above 14.7 pounds and 212°, the latent heat of evaporation falls, until, for instance, at 250 pounds pressure and 400.97° temperature it is 824.5; and at 1000 pounds pressure and 544.58° temperature it is 643.5. At 3226 pounds pressure per square inch, with temperature 706.1, the latent heat of evaporation is 0.

But above 14.7 pounds and 212°, the heat content in British thermal units of a pound of steam is no longer the sum of the temperature less 32, and the latent heat, but increasingly in excess of such sum. With a pressure of 250 pounds per square inch, for example, the temperature is 400.97°. Deducting 32 we have 368.97. The latent heat of evaporation is here 824.5. This would give a total of 1193.47. But the heat content of a pound of steam at this pressure and temperature is 1200.5. At 3226 pounds pressure, the temperature of the steam is 706.1. Deducting 32 we have 674.1, and the latent heat of evaporation nothing, but the heat content of the pound of steam is 925.

The figures of latent heat and heat content for steam at all the various pressures and corresponding temperatures are the result of long research (still continued for possible further correction), and are embodied in the steam tables to be found in all the mechanical engineering handbooks. The figures given above are taken from *Marks' Mechanical Engineers' Handbook*, 1930, pages 333–337. I have transcribed a few of the figures to indicate the course they take, but with steam metered and steam pressures recorded, the heat content in B. t. u. of saturated steam produced can be ascertained immediately by the use of the tables. While these, as noted, cover pressures up to 3226 pounds, it is said that central stations use pressures up to 1400 pounds only, and that the highest pressure being used in the United States, 1800 pounds, is in an industrial plant.*

Steam pressure gauges, however, indicate and record pressure above atmospheric pressure, whereas steam tables are all based on "absolute" pressures. Absolute pressure is gauge pressure plus atmospheric pressure, for sea-level or altitude as the case may be. For example 101.3 gauge pressure at sea-level is increased by 14.7 atmospheric pressure, giving 116 absolute pressure. Consequently all the figures stated in the steam tables for 116 pounds per square inch absolute pressure, are applicable

* *Marks' Mechanical Engineers' Handbook*, page 1130.

when the pressure gauge indicates 101.3 pounds pressure per square inch, at sea-level.

The weight of steam produced is most accurately ascertained by the use of steam flow meters, and even this is subject to correction for moisture, that is unevaporated water, in the steam, unless the latter is either superheated, or metered after passing through a steam separator. Correction of the quantity of metered steam for moisture contained therein, is made by the use of certain instruments called throttling calorimeters or separating calorimeters.*

"Superheaters consist of a bank of tubes (exposed to the heat of the furnace gases), through which steam generated in the boilers is passed before it is delivered to the main steam line. This superheating of the steam evaporates all the moisture and heats the steam to a very high temperature." †

The temperatures of superheated steam are recorded by recording thermometers, and, just as for saturated steam, there are tables for superheated steam. In these tables, against each pressure and corresponding saturation temperature, the heat content per pound of steam is stated for the various temperatures of superheated steam (*Marks' Mechanical Engineers' Handbook*, pages 338 and 339). So again, merely with the information given by recording instruments and steam tables, the heat content of the pound of steam is readily ascertained. I have, however, already suggested that the steam table figures be adjusted to 60° Fahrenheit (instead of 32°) as zero point for heat for the purposes of the accounts.

If the coal weighing and steam metering equipment are complete for each boiler separately, there should be a separate record for each boiler, subsidiary to the boilers account in the power cost ledger.

When we come presently to the tentative schedule of accounts to be kept in the power cost ledger, it will be necessary to take into consideration one possible condition, not so far mentioned, namely, that coal may be used in pulverized form.

EQUIPMENT

First, however, it seems necessary to pause to consider certain fundamental conditions of all factory accounts; equally of power

* *Marks' Mechanical Engineers' Handbook*, pages 2041 and 2042; and Beard, "Compendium of Power Plant Equipment," *Industrial Management*, December, 1924.

† Beard, "Compendium of Power Plant Equipment," *Industrial Management*, December, 1924.

plant accounts, and of all other factory process accounts. In all we are dealing with plant charges, that is with the cost of plant and with the expense of repairs and renewals.

The first thing that is desirable, and even essential, at the outset of all factory accounting is an orderly inventory of the plant with the costs or values for all the items in it. Briefly one may say that this should be in the form, or as nearly as possible the equivalent thereof, in which plant appraisals are stated by appraisal companies. In each division of the factory accounts one must know all the plant costs or values involved, to make it possible that amortization charges in respect of all of them shall be brought justly into the costs of products. Even when this information is available, and the lifetime of the various units carefully judged, there is an important question as to the accounting method.

To illustrate, it is plain that the cost of a boiler is a part of the cost of the total steam produced in it between the time it is new and the time it is worn out. The cost of the coal consumed is also a part of the cost of the steam produced. But between these two costs there is a distinction, long a subject of discussion. The item of coal cost is paid for month by month, practically as it is used. The item of boiler plant cost is paid in advance, we may say, for twenty years.

There is a method of calculating plant amortization charges by which *an equal sum* is charged into the cost of the product in each year throughout the life of an item of construction or equipment, but whereby the sum of these charges in the years of the calculated life is not merely the original cost of such an item, but the original cost plus interest on the balances remaining unextinguished from year to year. The unextinguished balance (cost, less amortization to date) is, of course, falling from year to year, and the interest thereon is falling. It follows that the part of the annual charge which is amortization of cost is correspondingly increasing, for the total annual charge is always the same. The annual charge to operation has its corresponding credit partly in the reserve for amortization of cost and partly in an interest account and so in the profit and loss account. The effect is that the cost is exactly extinguished in the calculated life, while the expense of any interest is offset to the extent of the interest credit on the unextinguished balance of plant investment. That this is exact accounting may be seen more clearly if it is supposed that the capital for investment in plant is borrowed,

and is repaid year by year as an amortization rate is reserved out of profits. The interest debited profit and loss in this connection, and the interest credited, would then be equal (if the interest rates were equal) in each year. The charge against operations, and so into the cost of products, is the same in every year. The accounts of every year are in this respect upon exactly the same basis, whereas with a different method all years might bear an equal amortization charge (sufficient to extinguish cost), but the earliest year would bear the maximum expense of investment (whether capital were owned or borrowed makes no difference) and all later years a decreasing expense.

I do not think the procedure just described has its highest importance in manufacturing accounts, where investment in plant tends to be fairly constant. Its highest importance is where there is a large investment in wasting assets. But it is no less just, it no less reflects the truth, in the one case than in the other.*

Still more imperative, it seems to me, is special consideration of the expense of repairs and renewals. In the case of the boiler this expense is certainly a part of the cost of steam, i.e., a part of the cost of all steam produced. But far from being incurred evenly every day or every month that the boiler is operated, it is incurred at fairly long intervals and often in rather large amounts, and as regards the individual boiler, at times when no steam at all is being produced. Obviously the only way by which the expense can be made to fall upon all the steam production equally is to make constantly an equal reserve for repairs and renewals in each month and year of actual running. The alternative, which we have all seen in actual practice, is to have the steam costs run up from time to time to perfectly unreal figures because repairs which correspond perhaps to a year's operation are made in a small fraction of the year.

It is therefore assumed in the present article that the plant amortization charges in each month's accounts are equal charges per month throughout the life of the units of equipment, and that these are calculated to provide for initial cost plus interest annually upon the unextinguished balances of the same; and that the repairs and renewals charges are constant equal charges per month, sufficient according to the best engineering judgment

* See *Principles of Depreciation*, Saliers, Ronald Press, 1918, pages 152–158; and "Annuity Method of Depreciation," David Himmelblau, *Proceedings International Congress on Accounting*, New York City, 1929, pages 335–350.

available, to provide for the repairs and renewals expense to be incurred throughout the lifetime. Except that, as I have already suggested, it may be very proper and necessary to use different rates for boiler repair and renewal reserves according as the coal used is of high or low quality, and even according to its special characteristics.

I have in the foregoing referred to one fuel only, but steam is generated with various fuels—coal, oil, and natural gas, and various waste fuels, especially the waste gases from steel works blast furnaces. Waste fuels should be credited to waste fuel accounts at their value as ascertained in the steam production from them, and the relative cost of available purchasable fuels. The waste fuel accounts should then be charged with all the expenses of operation, repairs and renewals, and amortization, in connection with all equipment for their recovery, transmission or transportation, and delivery to the boilers. Balances thereafter remaining at the credit of waste fuel accounts are to be transferred to the credit of the processes producing them. The credit for steam produced by boilers operated with the waste heat of metallurgical furnaces is to be determined according to the same principles.

ACCOUNTS

I will close the present article with a tentative outline of the boilers account, and the accounts preliminary thereto in the power cost ledger. As regards coal, the debits to the power cost accounts begin with the coal transferred from storage to boilers, credited in the coal stores ledger, already described. The first account in the power cost ledger may be:

Coal Unloading, Storing, Crushing, Etc.

to include conveying to boiler house, weighing and analyses

The debits are:	The credits are:
Labor	Boilers account
Power	at rates per ton for these
Supplies	expenses adjusted to approximate
Laboratory charges	current costs as shown by the account
Miscellaneous expenses	
Repairs and renewals reserve*	
Plant amortization reserve	

* By means of series of standing repair orders (for all small repairs), and series of special repair orders (for all larger repairs), repairs and renewals are very simply recorded and totaled monthly for each separate class of equipment. The power engineer must establish the series of standing repair orders, and the corresponding analysis of the repair expenses will automatically follow.

Or if the coal for the boilers is pulverized, the credits to the accounts in the coal stores ledger, and to the foregoing account for unloading, storing, etc., will be debits to the pulverizing account, which may be as follows:

COAL PULVERIZING ACCOUNT

Debits

Coal at pulverizing plant, raw and in process, at beginning of month	Balance from the previous month determined as described in connection with the closing credit hereto.
Coal delivered to pulverizing plant in the month	Delivery from cars as received; or weighing from storage, and sampling at least for moisture. The storage accounts should give the thermal unit contents per unit of dry coal weight, with satisfactory closeness.
Unloading, storing, conveying, etc.	Average of all costs per ton from unloading to delivery at pulverizing plant, whether storage intervenes or not.
Pulverizing plant expenses: Labor Steam Electric current—power " " —light Supplies Laboratory charges	

Debits

Miscellaneous expenses
Superintendence
Repairs and renewals reserve
Plant amortization reserve

Credits

Boilers account (or an intervening boiler house storage account)	Pulverized coal weighed to boiler house bunkers, sampled for moisture and B. t. u. determinations; at cost as shown by this account for the month.
Coal at pulverizing plant, raw and in process, at close of month	

The foregoing account must have columns for gross weights, dry weights, and heat values in British thermal units, and these

must be entered for the coal received and the coal delivered. The weight of any waste material rejected in the pulverizing plant must be entered in the gross weight and dry weight credit columns only. The columns will then give balances of gross weights and dry weights and heat values which should be a statement of the inventory at the end of the month in these terms, but which should be verified by such survey as is practicable and by seeing that dry weight and heat value figures are consistent. The value of the inventory may then be taken to be the dry weight balance at the average cost of dry coal per ton as charged to the account. After determining the value of the closing inventory, the balance is the cost of pulverized coal delivered to the boiler house.

The next accounts are for expenses of feed water treatment. These should be closed by a journal entry at the end of the month, debiting the total of them to the boilers account.

Water treatment—Labor
" —Chemicals
" —Steam
" —Electric current—power
" —Electric current—light
" —Supplies
" —Laboratory charges
" —Miscellaneous expenses
" —Superintendence
" —Repairs and renewals reserve
" —Plant amortization reserve

The next accounts are for the expenses of boiler operation. These should be closed by a journal entry at the end of the month, debiting the total of them to the boilers account.

Boiler operation—Labor
" —Steam
" —Electric current—power
" —Electric current—light
" —Supplies
" —Miscellaneous expenses
" —Superintendence
" —Repairs and renewals reserve
" —Plant amortization reserve

BOILERS ACCOUNT*

Debits

	Pounds of water	B. t. u. over 60° F.	Amount
Water—new			
" —condensate			
Expenses of feed water treatment			
Exhaust-steam heat-content used for pre-heating feed water (heat content received over 60° F., from metered or calculated quantities and recorded pressures, less remaining heat content of the same steam delivered for other uses, similarly calculated—B. t. u. millions: ————)†			
Heat content of boiler feed water in month in British thermal units, over 60° F., except as already debited this account in condensate item above			
Weight, heat content and cost of boiler feed water			
Coal			
Dry weight ————			
Heat value in B. t. u. ————			
B. t. u. added to water ————‡		————‡	
Percentage boiler efficiency ————			
Expenses of boiler operation			

Credits

	Pounds of steam	B. t u. over 60° F.	Amount
Steam account			
Water unaccounted for ———%.			

* Must be divided if steam is generated at different pressures for different purposes.

† Procedure described more fully in article following this; also procedure if extracted steam is used to pre-heat boiler feed water.

‡ This is a balancing figure, being the heat content of steam produced, less the heat content of the boiler feed water.

In the foregoing account, exhaust-steam B. t. u. millions used, and B. t. u. millions in boiler feed water over condensate, are comparable figures, giving the measure of the recovery of the former in the latter. Coal and expenses of boiler operation, divided by B. t. u. millions added by the boiler, give the unit cost of the latter. The cost of the million B. t. u. in the steam produced is, of course, given by the closing credit to the account.

The final account is the steam account which is debited in accordance with the closing credit above. It is credited in accordance with the distribution of steam, first to boiler house auxiliaries and coal and water expense accounts; then to steam engines and turbines, steam pumps, and any other users of live steam. The metering must be sufficient to make the distribution of quantities and consequently of thermal units with serviceable accuracy. The question then arises as to the pricing of this distribution and I believe a standard cost figure for the million British thermal units in steam should be used.

In the following articles I shall have occasion to point out certain disadvantages if the varying cost of steam consequent upon varying boiler capacities developed, enters into the costs of power; and again the varying cost of power, due not only to the same but to accumulating causes, enters into the costs of manufacture. The matter assumes different aspects in different industries: in the cost accounts of the machine industries there is the practically inevitable introduction of standard unit costs for power, before the ultimate determination of the costs of products, while in the cost accounts of the chemical industries this is not the case. There is, I believe, only one means of correcting it everywhere, namely to use the most carefully determined standard cost figures, first for the million B. t. u. in steam, and then for the kilowatt hours of direct and alternating current, and for other units of power, to credit the accounts for their generated quantities and costs. This, of course, will always leave a balance, debit or credit, in these accounts. These balances I would close to special accounts, as steam gains and losses, direct current gains and losses, alternating current gains and losses, and so on, it being understood that these titles mean, for example, "alternating current gains and losses from varying loads and varying efficiencies, in comparison with standards established by the power engineer."

SUMMARY

Is the keeping of such steam accounts as I have described a heavy undertaking? I think certainly not, but it may be worth while to re-state briefly what is involved in them, and to make a comparison in this respect with alternative procedures.

First, there is a particular arrangement of expense accounts which once established is no more trouble to keep than accounts for the same expenses arranged any other way. Beyond this the following are involved:

(a) The weighing, sampling and analysis of coal received (necessary in any case if one is to know what one is paying for).
(b) The weighing of coal consumed and sampling for moisture.
(c) The metering of steam produced.
—without both of these there can be no knowledge at all of the actual efficiency of the boiler plant operations.
(d) An accounting for exhaust steam (containing about 90 per cent. of the heat in the steam when it left the boilers), which I believe is absolutely necessary to the economic control of its production and utilization.

What are the customary measures of boiler plant performance? The most rough and ready is pounds of water evaporated for the pound of coal consumed. But this requires weighing of coal to the boilers, and metering either of water to or steam from the boilers. And when the result is accurately ascertained it means very little. What is the quality of the coal, the temperature of the boiler feed water, the temperature of the steam? Unless all these are known, pounds of water per pound of coal is of very indefinite meaning.

There is another and much more exact way of stating boiler plant performance. Under the normal atmospheric pressure of 14.7 pounds per square inch water boils at 212° F. The steam produced is of the same temperature. The additional B. t. u. taken up in the conversion of the water into steam are 970.2, these being the latent heat of evaporation in steam at 212°. On this basis, boiler performance for feed water at any temperature, and steam of any pressure and temperature, is expressed as "equivalent evaporation from and at 212°." The actual B. t. u. in a pound of the steam is taken from the steam tables, and the B. t. u. in the pound of water entering the boiler (also taken from

the steam tables and being approximately temperature less 32) is deducted, and the result is divided by 970.2. The result is what is called "the factor of evaporation." The actual pounds of water evaporated are multiplied by this factor of evaporation, and the result is "pounds of equivalent evaporation from and at 212°."* A further step is to take the same figure of B. t. u. in the pound of steam less the same in the water entering the boiler, multiply it by the pounds of actual evaporation per pound of coal, and divide this by the B. t. u. in the pound of coal. The result is the "percentage of boiler efficiency," or in other words, the percentage of recovery in the steam of heat units contained in the coal consumed. This differs from pounds of water per pound of coal in this important way: it isolates the boiler performance and measures it exactly apart from all other conditions. This is accomplished also, and the result expressed in money figures, by stating the cost per million B. t. u. added to the water as received by the boiler, to give the steam delivered by the boiler.

There is yet another way in which the results of boiler plant operation have been expressed, namely, by stating each month the cost per 1000 pounds of steam. This is not quite an exact expression, for steam varies in heat content, but it is a very useful figure, for in the individual plant the average steam pressure is likely to be not very different from period to period, and even as pressures rise or fall the heat units per pound of steam change very gradually, the changes in sensible and latent heat respectively largely offsetting each other. But to determine the cost per 1000 pounds of steam necessitates, of course, an exact coal charge and an exact statement of steam produced. It does not deal at all with British thermal units in either. As to the importance, however, of the British thermal unit accounting, I may quote from an article on "Ford Practice at River Rouge" in *Industrial Management*, March, 1923, that "B. t. u. per kilowatt hour are known exactly and checked almost hourly."

All the results stated by all the foregoing methods can be obtained by simple calculations from the boilers account as I have

* This, of course, is an exact figure, but the unit used (970.2 B. t. u.) relates to boiler performance only, whereas the British thermal unit (as we have so far seen and later shall see more fully) has significance at every step in these operations. As I understand it, this is the point of the concluding remark in the following: "The committee on boiler tests of the American Society of Mechanical Engineers defines the boiler horse power as the equivalent evaporation of 34.5 pounds of water from and at 212° per hour. This is the same as 33,479 B. t. u. per hour. The use of equivalent evaporation is rapidly becoming obsolete." (*Marks' Mechanical Engineers' Handbook*, page 1126.)

outlined it above.* The single determination of the cost of 1,000,000 B. t. u. in the steam surpasses them all either in exactness or comprehensiveness. The only thing involved in the plan of accounts that I have outlined that is not involved in any of the foregoing is the accounting for exhaust steam, which I believe is imperatively necessary, and inescapable if there is to be an unbroken accounting for values.

Beyond the various determinations of chemists and engineers incorporated in the foregoing accounts, there are other determinations (particularly those expressed in the engineer's heat balance sheet) which can scarcely be introduced into the accounts at all. Nevertheless, no figures relative to the operations can be really foreign to any other figures relative thereto. Data from the engineer's records and from the accounting records, with one notation from still another source, should be combined to give a monthly summary in which conditions and results can be read together. For example:

(a) The weight of coal consumed, the average analysis and the average cost per ton.

(b) The most significant figures relative to capacities developed by the boilers operated, singly if possible.

(c) The total steam production expressed in thousands of pounds and millions B. t. u.

(d) The cost of steam per 1000 pounds and per million B. t. u.

(e) The engineer's heat balance sheet for the month, if a continuous balance is produced,† or a representative heat balance sheet for a test period, or both.

(f) A memorandum by the works superintendent (or a summary thereof), checked by the power plant engineer, of interruptions of or deficiencies in the supply of power, attributable to steam plant operation.

The relations between boiler capacities developed (in comparison with "ratings" and "economical loads") and the various econ-

* As regards the first, the boilers account shows the dry weight of coal, and the weight of steam which is the same as the weight of water evaporated. As regards the second, all the necessary factors are available, if when weight and B. t. u. contents are stated for coal, water as fed to the boilers, and steam, the B. t. u. per pound of each of these is noted in the account. As regards the money figure here this also is clearly given. As regards the third, this is a simple calculation from the closing credit in the boilers account.

† "A system of periodical heat balance of continuous operation," Gibson, *Industrial Management*, December, 1925.

omies of operation, are dwelt upon everywhere by power plant engineers. The engineer's heat balance sheet takes the difference between the B. t. u. in the coal, and the same recovered in the steam, and accounts for this difference according to the various channels of loss.

These monthly summaries should then be tabulated in comparative form for the year. In the course of the two articles to follow they will be added to, so that in the end they will embrace the monthly unit costs of power in every form, and various figures of comparative economies by which the variations in ultimate costs are explained. It is not intended that they shall include tabulations of detailed operating expenses, for the compiling of which the accounts afford the fullest facilities, and which may be compiled elsewhere in whatever form and to whatever extent may be thought desirable. It is intended however that they shall state all final results and the essential conditions which determine them, with all attainable simplicity and clearness. And they will not have this character unless they are the product of the power department organization, of which the power accounting should be an integral part.

The Old "Commission and Tax" Problem

By A. van Oss

The Journal of Accountancy of January, 1921, contained my article, *Computation of Commission and Federal Taxes*. It dealt with the problem of computing the commission payable on profits after deducting the federal tax, the commission itself being a deductible item in the calculation of the tax. The tax can not be computed without knowing the amount of the commission, nor the commission without knowing the amount of the tax.

The solution of problems of this sort is quite simple. Ordinary public-school arithmetic or algebra will solve all those with which the average practitioner has to deal. Many people, however, are mystified by them and the most ridiculous notions are current about their difficulties. Some consider them incapable of solution by direct methods, others imagine that higher algebra is involved. On the whole, the difficulty seems to lie in the approach or the method of stating the problem in such a way that the solution logically follows.

In the above-mentioned article a number of problems are rather exhaustively discussed—perhaps too exhaustively to appeal to the busy man. The problems are, moreover, based on the 1920 federal income and excess-profits tax. However, the discussions and demonstrations hold good and remain applicable to present conditions.

The subject is still more or less alive. It comes up in actual practice and in C. P. A. examinations. A revival may be in order to stimulate a lagging interest. I have especially in mind the future members of the profession—those who study for their C. P. A. degree. My experience with junior and senior assistants gives me no high estimate of their ability to solve those problems in arithmetic or algebra that go a little beyond the mechanical processes of these subjects and that call for a little reasoning.

They adhere too much to the common belief that to get there is the principal thing and little attention is paid to method and form. As a rule, methods of trial and error are used and it is thought entirely legitimate to produce the answer by crude approximations and after various trials.

This attitude of mind may not be entirely unworthy, but certainly has little merit. In these days, when mostly high school

or even college graduates enter the profession, the student of accountancy may be expected to know his arithmetic and lower algebra. He should, therefore, be able to solve such problems by purpose and design, instead of trying various methods that may bring him near the correct answer.

In this article a few problems are dealt with that are more in accordance with the present tax situation. Also a simpler and more direct approach and solution are given than in the old article and theoretical discussions are avoided.

PROBLEM I

The earnings of a concern before deducting commission and taxes are $100,000.

A commission of 20% is paid to the management after paying 15% federal and 10% state taxes. The federal tax is payable after deducting commission and state tax and the state tax after deducting commission and federal tax.

Compute the amounts of commission, federal and state taxes and the balance of profit.

If we consider the problem solved we find that the balance of profit (x) is equal to

1. A certain amount (a) less state tax (10% or $\frac{10}{100}$ of a) or $\frac{90}{100}a$
2. A certain amount (b) less federal tax (15% or $\frac{15}{100}$ of b) or $\frac{85}{100}b$
3. A certain amount (c) less commission (20% or $\frac{20}{100}$ of c) or $\frac{80}{100}c$

Taxes and commission are herein expressed in fractions of (a), (b) or (c). They may also be expressed in fractions of the balance of profit (x), viz:

1. State tax $= \frac{10}{100}a = \frac{10}{90}$ of $\frac{90}{100}a = \frac{10}{90}x$ or $\frac{1}{9}x$
2. Federal tax $= \frac{15}{100}b = \frac{15}{85}$ of $\frac{85}{100}b = \frac{15}{85}x$ or $\frac{3}{17}x$
3. Commissions $= \frac{20}{100}c = \frac{20}{80}$ of $\frac{80}{100}c = \frac{20}{80}x$ or $\frac{1}{4}x$

The fact that taxes and commission can be stated in terms of the same amount—the balance of profit (x) is the important

reality to impress upon the mind, for this manner of statement at once leads to the solution of the problem.

SOLUTION OF PROBLEM I

It is evident that the balance of profit plus taxes and commission equals $100,000 or:

$$x+\frac{1}{9}x+\frac{3}{17}x+\frac{1}{4}x=\$100{,}000$$

or, after multiplying both sides of the equation by $9\times17\times4$ or 612, we have

$$612x+68x+108x+153x=61{,}200{,}000$$
$$941x=61{,}200{,}000$$
$$x=\$65{,}037.20$$

Balance of profit		$ 65,037.20
State tax—1/9 of 65,037.20		7,226.35
Federal tax—3/17 of 65,037.20		11,477.15
Commission—1/4 of 65,037.20		16,259.30
Earnings before deducting taxes and commission		$100,000.00
Proof—State tax		
Gross earnings as above		$100,000.00
Deduct—Federal tax	$11,477.15	
Commission	16,259.30	
		27,736.45
		$ 72,263.55
Deduct—10% state tax		7,226.35
Balance of profit		$ 65,037.20
Proof—federal tax		
Gross earnings as above		$100,000.00
Deduct—State tax	$ 7,226.35	
Commission	16,259.30	
		23,485.65
		$ 76,514.35
Deduct—15% federal tax		11,477.15
Balance of profit		$ 65,037.20

Proof—Commission		
Gross earnings as above		$100,000.00
Deduct—State tax	$ 7,226.35	
Federal tax	11,477.15	
		18,703.50
		$ 81,296.50
Deduct—20% commission		16,259.30
Balance of profit		$ 65,037.20

PROBLEM II

The earnings of a concern before deducting commissions and taxes are $100,000.

A commission of 5% is paid the president after paying 5% to other officers, as well as 15% federal and 10% state taxes. The commission to the other officers is payable before deducting the president's commission and the state tax, but after deducting the federal tax.

The federal tax is payable after deducting the two commissions and the state tax.

The state tax is payable after deducting both commissions, but before deducting the federal tax.

The above earnings of $100,000 are stated after deducting $10,000 expenses not allowed by the federal government and before deducting $5,000 allowed by the state.

Compute the amounts of commissions, taxes and balance of profit.

A problem of this sort is not at all unusual. Its complications are more imaginary than real and its solution is substantially the same as that of problem I.

SOLUTION OF PROBLEM II

Balance of profit x

President's commission ..... $\frac{5}{95}$ or $\frac{1}{19}x$

Federal tax ..... $\frac{15}{85}$ or $\frac{3}{17}(x+10{,}000)$

State tax ..... $\frac{10}{90}$ or $\frac{1}{9}\left[x-5{,}000+\frac{3}{17}(x+10{,}000)\right]$

Other officers' commission

$$\frac{5}{95}\text{ or }\frac{1}{19}\left\{(x+\frac{1}{19}x)+\frac{1}{9}\left[(x-5{,}000)+\frac{3}{17}(x+10{,}000)\right]\right\}$$

The balance of profit plus commissions and taxes being $100,000 we have the following equation.

$$x+\frac{1}{19}x+\frac{3}{17}(x+10{,}000)+\frac{1}{9}\left[(x-5000)+\frac{3}{17}(x+10{,}000)\right]$$
$$\frac{1}{19}\left\{(x+\frac{1}{19}x)+\frac{1}{9}\left[(x-5000)+\frac{3}{17}(x+10{,}000)\right]\right\}=100{,}000$$

or, after multiplying both sides of the equation by $19\times19\times17\times9$ or 55,233, we have:

$$55{,}233x+2{,}907x+9{,}717x+97{,}470{,}000$$
$$+6{,}137x-30{,}685{,}000+1{,}083x+10{,}830{,}000$$
$$+2{,}907x+153x+380x-1{,}045{,}000$$
$$=5{,}523{,}300{,}000$$
$$\text{or } 78{,}547x+76{,}570{,}000=5{,}523{,}300{,}000$$
$$\text{or } 78{,}547x=5{,}446{,}730{,}000$$
$$x=\$69{,}343.58$$

Balance of profit		$ 69,343.58
President's commission—1/19 of 69,343.58		3,649.66
Federal tax—3/17 of (69,343.58+10,000) or 3/17 of 79,343.58		14,001.81
State tax—1/9 of (69,343.58−5000+14,001.81) or 1/9 of 78,345.39		8,705.04
Other commissions—1/19 of (69,343.58+3,649.66+8,705.04) or 1/19 of 81,698.28		4,299.91
Earnings before deducting taxes and commissions		$100,000.00

Proof—President's commission

Gross earnings as above		$100,000.00
Deduct—Federal tax	$14,001.81	
State tax	8,705.04	
Other commission	4,299.91	
		27,006.76
		$ 72,993.24
Deduct—5% commission		3,649.66
Balance of profit		$ 69,343.58

Proof—Federal tax		
Gross earnings as above		$100,000.00
Deduct—President's commission	$ 3,649.66	
State tax	8,705.04	
Other commission	4,299.91	
		16,654.61
		$ 83,345.39
Add—Unallowed deduction		10,000.00
		$ 93,345.39
Deduct—15% federal tax		14,001.81
		$ 79,343.58
Deduct—Unallowed deduction		10,000.00
Balance of profit		$ 69,343.58
Proof—State tax		
Gross earnings as above		$100,000.00
Deduct—President's commission	$ 3,649.66	
Other commissions	4,299.91	
Allowable deductions	5,000.00	
		12,949.57
		$ 87,050.43
Deduct—10% state tax		8,705.04
		$ 78,345.39
Add—Allowable deduction		5,000.00
		$ 83,345.39
Deduct—Federal tax		14,001.81
Balance of profit		$ 69,343.58
Proof—Other officers' commission		
Gross earnings as above		$100,000.00
Deduct—Federal tax		14,001.81
		$ 85,998.19

Deduct—5% commission		$ 4,299.91
		$ 81,698.28
Deduct—President's commission	$ 3,649.66	
State tax	8,705.04	
		12,354.70
Balance of profit		$ 69,343.58

PROBLEM III

We now take the same earnings and percentages of commission and taxes as in problem I except that each is itself a deductible expense.

Instead of making the computation more difficult, it becomes simpler for the stated percentages of commission and taxes are in such a case also the percentages of the balance of profit (x) viz:

Balance of profit	$x =$	$ 68,965.52
Commission	20% of $x =$	13,793.10
Federal tax	15% of $x =$	10,344.83
State tax	10% of $x =$	6,896.55
Together	145% of $x =$	$100,000.00
	$x =$	$ 68,965.52

PROBLEM IV

If again we take the same earnings and percentages as in problem I but, instead of all expenses, only the commission is itself deductible from earnings, we have in accordance with the solutions of problems I and III:

Balance of profit	$x =$	$ 67,223.20
Commission	$1/5\ x =$	13,444.64
Federal tax	$3/17\ x =$	11,862.92
State tax	$1/9\ x =$	7,469.24
	$\frac{1138}{765} x =$	$100,000.00
	$x =$	$ 67,223.20

PROBLEM V

This is a modification of problem I to the extent that 20% commission is paid on the current year's increase in the profits after deducting taxes, the previous year's amount being $60,000.

Again the solution is practically by the same procedure as in problem I, viz:

$$x+\frac{1}{9}x+\frac{3}{17}x+\frac{1}{4}(x-60{,}000) = \$\ 100{,}000.00$$

$$941x-9{,}180{,}000 = 61{,}200{,}000.00$$

$$941x = 70{,}380{,}000.00$$

$$x = \$\ 74{,}792.77$$

Balance of profit	$ 74,792.77
State tax—$\frac{1}{9}$ of $74,792.77	8,310.31
Federal tax—$\frac{3}{17}$ of $74,792.77	13,198.73
Commission—$\frac{1}{4}$ of $14,792.77	3,698.19
Earnings before deducting taxes and commission	$ 100,000.00

In most cases that are met in practice only two interdependent items of expense enter into the problem, namely, the commission and the federal tax. In the above problems a third and even a fourth item is introduced to show that their number does not affect the method of approach and solution. With only two items of expense there is less figuring to be done but procedure and principle remain the same.

It should now be plain that problems of this kind can be solved by simple, direct method. No general formulas such as are given here and there need be remembered. A proper approach leads to the correct solution.

Present Tendencies in Accountancy Legislation *

By Maurice E. Peloubet

Until about ten years ago accountancy legislation in the United States had been substantially uniform in the various states. A certified public accountant certificate was to be granted to men in practice at the time the law was passed and thereafter to successful candidates in examinations. Boards of accountancy to administer the law and set examination questions were created and penalties were set for falsely representing that any person was a certified public accountant when he was not so in fact. The laws contained no restrictions on the practice of accountancy as such.

For a few years previous to the year 1924 there had existed a wide-spread feeling among some members of the profession that the restriction of practice as well as restriction of the use of a state-granted title should be embodied in the law, presumably on the analogy of the profession of accountancy with those of law and medicine. Several states attempted legislation of this character but no law held to be constitutional was passed until 1924. Restrictive laws in general provide that the practice of accountancy may be carried on in a state only by persons licensed by and registered with the state authorities. The methods of administration, definition of accountancy practice and exceptions to general restrictive provisions are dealt with later in this paper. However, the real questions at present in accountancy legislation seems to be whether restriction is desirable and, if desirable, whether it is possible to administer a restrictive law effectively. Most of the writing on this subject falls into the category of controversy rather than that of examination of facts and tendencies.

It is proposed in this paper to avoid, so far as is humanly possible, any attempt to make out a case for either type of legislation in its most extreme form. Enthusiastic partisans of either side will probably be disappointed with this attempted survey of the situation, but this paper is directed more to the man of moderate opinion or of no special opinion than to the strong supporter of either type of legislation.

It might be well, purely as a matter of information, to rehearse the arguments usually brought forward for and against restriction.

* Address delivered at the annual meeting of the American Institute of Accountants, Philadelphia, Pennsylvania, September 15, 1931.

Those who favor restriction contend that the accountancy profession affects the property of citizens and that the ordinary citizen is not usually able to pass on the qualifications of an accountant. Therefore, it is to the public interest to protect the citizens in their capacities as clients or investors from the work of unqualified or unscrupulous practitioners. If every accountant is licensed by and registered with the state authorities a high standard of competency can be maintained and the public will be protected. It is further held that accountancy work arising in or conducted in a particular state should be performed by accountants licensed by that state, for if this is not done the public will not be protected and an injustice will be inflicted on the accountants of that state.

At least one state restricts the use of firm names to living persons and residents of the state, on the ground that it is unfair and misleading to practice under a firm name which includes men who have died years ago or are residents of another state or country.

Most states which have restrictive laws provide in some way for permitting accountants from other states to carry out temporary engagements which have arisen outside the state.

In answer to the contention that some of these restrictions are unduly difficult and burdensome it is frequently replied that they are concessions and not matters of right and that, therefore, the individual state is the best judge of what might be properly conceded.

To sum up the arguments for restrictive legislation we may say that they cover:

1. Protection of the public.
2. Protection of accountants in a particular state.

One of the arguments usually brought forward against restrictive legislation is the difficulty of defining professional public accountancy, as there are many activities which are of a similar or closely related nature, and most of the definitions expressed or implied in the restrictive laws are wide and inclusive.

The opponents of restrictive legislation seem to doubt the effectiveness of the protection afforded the public by licensing all accountants by the state. They seem rather to incline to the raising of professional standards of the certified public accountant and to educating the business and investing public as to the difference between the certified and uncertified man.

The opponents of restrictive legislation do not seem to believe that there is quite the close analogy between law and medicine on one hand and accountancy on the other which forms the basis of so many of the contentions in favor of restrictive legislation. They point out that medicine deals with life and law deals with liberty and civil rights as well as with property, while accountancy deals only with property. They also point out that it is comparatively easy to define the practice of law and medicine but very difficult to distinguish between professional public accountancy and other activities which resemble it closely and are closely allied to it. They further object to the necessity of admitting, under most forms of proposed restriction, a large number of men whose qualifications are clearly and demonstrably lower than those of certified public accountants licensed under the older type of law.

The objection, however, to which the opponents of restrictive legislation seem to attach the greatest importance is the risk of impeding the interstate practice of accountancy through the enforcement of awkward and time-consuming formalities by some states before work arising in another state can be performed and of a possible eruption of reprisal in other states which do not at present have restrictive laws.

There is nothing particularly new nor, I fear, especially interesting in this summary of arguments which have been reiterated with considerable frequency and varying degrees of bitterness for the past eight or ten years. They are presented merely to complete the historical background of the present situation.

I suppose it is inevitable that there should be some subjects on which accounting opinion is divided, but on most of them opinion is somewhat academic and one side is under no compulsion to yield to the opposition. When one side, however, is able to write its opinion into a statute it becomes a matter of importance to the whole profession. To this point has opinion on legislation, particularly in relation to its restrictive or non-restrictive nature, come.

At the outset I must confess to being rather in the dark as to the exact motives and purposes of the proponents of the type of laws involving restriction of accountancy practice. The theory has been argued well and at length without telling us much about motives. As I can add little to the discussion of motives or theory, about all that remains to be said is that we should perhaps inquire more precisely into facts and conditions which may possibly throw some light on the subject.

To summarize such facts and conditions I would say, first, that, naturally, logically and ethically accounting work falls into two main classes—that which extends over several states or even the entire country and that which is local—each distinct and distinguishable by the form and location of the management and financial control. Second, by reason of contact and reputation some of the purely local work naturally flows to the firm with an interstate practice. Third, restrictive legislation is striving for the impossible in attempting to divide the above two classes on state lines. Fourth, the predominant problem of the profession is lack of uniformity—in theory, in practice, in our public pronouncements and in accounting law. Fifth, control of our profession is essential to its health and growth, but that control, whether sought through legislation or through ethical constraint, should strive to regulate—not restrict—our activities.

THE INTERSTATE TYPE OF WORK

We need look back no more than forty years to trace two evolutions of relevance and importance to the subject under discussion: (a) the concentration of single enterprises under one management and one financial control and (b) the wide dispersion of stock ownership.

These forty years have thus seen a vast change in the financing, management, ownership and auditing of business generally. Such sweeping changes have necessarily affected the lives and work of our citizens; and they have been accompanied by constant and drastic adjustment to new conditions. It is one of those inevitable adjustments we are now discussing. In those forty years we move from a situation where there were few American accountants, and business was owned, financed and managed locally, to a situation of many American accountants with the management and finance of business concentrated in the financial centers and ownership spread pretty much over the world.

Accountants have multiplied and demand for their services has increased; but with the increase of mergers and consolidations the sources of such engagements have diminished. Hence comes the firm in interstate practice where partners, managers and seniors, each one capable of running a small local practice of his own, enlist under one banner as individual businesses have done. The accountant follows the business—the big accounting firm is at once the product and the instrument of big business. That is

the first point I wish to make—that restriction must recognize, make provision for and facilitate this legitimate development if much of its opposition is to fall away.

It is useless to oppose a condition which is forced upon us from without. No representative firm wants to take work away from other accountants; but it is obliged by circumstances beyond its control to take work from or to yield work to other accountants when ownership or control of business changes. This sort of accountancy work is of an essentially interstate character.

Significant conclusions may be drawn from this: (a) accountancy is a profession to a large extent brought into existence by and so far as volume of work goes, primarily concerned with, the corporate form of business enterprise; (b) the accountant ordinarily will be engaged by those having to do with the financial management of the corporation; (c) accountants, therefore, ordinarily will become established in a city which is to some extent a financial center; and (d) the client will usually want the accountants to do a complete piece of work for the corporation wherever the company operates.

Furthermore, these tendencies are spreading, and it is natural to think that we are nearing a second stage of development of accountancy in this country. Our country is now financing not only its own activity but to a large extent that of other parts of the world. Our present position is not dissimilar to that of England in the nineteenth century, when she was both a creditor nation and a large exporter. As we are now in much the same position it is inevitable that the greater number of our accountants should concentrate in the cities which supply finances for these various developments.

Our forty-eight states and the District of Columbia may be divided broadly into eighteen industrial or urban and thirty-one not primarily industrial or urban. Of the eighteen industrial five have cities of a million or more population. It is estimated by the American Institute of Accountants that about 14,555 C. P. A. certificates have been issued in the United States, of which 75% have been issued in the eighteen industrial states; nearly 50% in the five "over a million" states and nearly 25% in New York alone. Since these figures are percentages, I think their relation is not much affected by the fact that in some cases certificates of more than one state have been issued to one man and furthermore it is probable that there are more men in practice in the industrial

states than the figures show. This is borne out by the distribution of the membership of the American Institute of Accountants of which over 85% is from the eighteen industrial states, 60% from the five "over a million" states and over 30% from New York alone.

As further indicating this concentration, a recent check of corporation stocks or bonds listed on the New York stock exchange is interesting. It shows a total of 1,056 companies, of which 701 publish accounts certified by 102 public accounting firms or individual practitioners. The points of present interest are that two-thirds of the listed concerns are audited and the head offices in the United States of 58 of the 102 auditors are in the city of New York. These 58 conduct about 90% of the 701 audits.

In saying that we must recognize that it is wasted effort to oppose this natural trend of accountancy to the larger financial centers I must not be understood to imply that we may ignore injustices which arise from or are made possible by that situation. The situation can not be changed but the injustices may be and should be remedied. All I wish to do is to distinguish this interstate type of work and to point out to the proponents of restrictive legislation that while almost any formula or expedient for remedying a wrong can be forced to the front and made popular for a time it will not bring the desired results unless it is on a sound basis. Nothing is ever settled until it is settled right.

Legislation in general should represent a crystallization of general practice or custom rather than an attempt to change conditions which seem to be so much a matter of course as to have almost the force of natural law. We are now at a stage where the finances of our own industries and to some extent those of other countries are provided from our great cities. The profession in this country has entrenched itself firmly in those centers. This, in effect, represents a transfer of professional work from London and the European financial centers to accountants on whom American financiers and investors wish to rely, and correspondingly it is not unreasonable to expect that the future tendency of accountancy work will be to draw away to some extent from the larger cities to the smaller ones as these latter become of more importance in investing and finance. However, the mere fact that a city is a large industrial center will not generally be a sufficient reason for large firms of accountants to be in practice there, as the audits of the local mills and factories will be controlled by the

financial management in another city. If this condition could be changed by legislation there might be reason for discussing such legislation, but it can not be changed and legislative attempts to change it often bring about results which are surprising and disconcerting to the advocates of the new laws.

No matter what we think ought to be the situation or what we think might be desirable, attempted compulsion by legislation or in any other way against natural tendencies of growth in the profession must ever be a losing fight. Business has ceased to be a local affair or a state affair and has become interstate, national or even international, and to keep step accountants must broaden their views and become national as well.

THE LOCAL TYPE OF WORK

As there is a well defined type of interstate work so there is an equally well defined type of local work, of which the first thing to be noted is that it is seldom bounded by state lines but is rather a matter of the territory naturally tributary to any given point. I would say, for example, that Jersey City is in local territory of the city of New York while Buffalo is not.

There is place for the large firm, the small firm and the individual practitioner, and the latter should not forget that he indirectly benefits by all well done accounting work by whomever done.

Let us consider the course of the growth of the profession here. Like many others of our institutions the accounting profession here has its roots in England. The reason for the early presence in this country of the trained professional accountant was the investment in American railroads, and later in other enterprises, of British and European funds. Foreign investors in American railroads and industries naturally wished to know through professional men in whom they had confidence that the affairs of the companies in which their money was invested were being administered worthily and that the statements they received represented the facts in a way lucid to them. For this reason British accountants were first sent to the United States, but the magnitude of those foreign investments and the volume of auditing work entailed soon led the British firms to establish branch offices here. At first these offices were of necessity manned largely by accountants trained in England and Scotland for there were few qualified American accountants in the 'eighties and early 'nine-

ties. It has long been, however, the general policy of these firms to employ as many American accountants as possible and they have aided greatly in the establishment of schools for the professional training of accountants in this country.

The growth and development of these large firms here, originally almost entirely British in personnel and now largely and increasingly American, is a real factor in the history of the profession which should not be overlooked. It is informing to observe the effects of the organization and growth of the British firms here, for it has been marked by an increase in both the number and volume of work of American accountants and American firms much greater proportionately than the growth of the British firms. In other words, the presence of trained and qualified men not only did not retard Americanizing the profession here but enlarged the opportunities of the American accountant both for employment and for practice on his own account, because of the training offered and of the gradual but steady education of the business public in what is to be expected from the services of public accountants.

In spite of the fact that a large proportion of accountancy work in this country is directed from a few cities there is a substantial and growing need for accountancy service which can be rendered as well or better by a local man than by the representative of a firm in some distant city, and this work the local practitioner of right considers his own and need make no great effort to hold.

This has particular reference to the usual business audit and does not apply to certain classes of local work of which an exception must be made. The restriction of some activities to accountants of the particular state would seem logical. For instance proposals to restrict municipal auditing to accountants of the state in which the municipality is located might not be unreasonable; appearance before tax boards might be restricted to accountants of the state, and so also might certain work related to court actions. Any function which is limited to a particular state and in which the local law is involved might be considered as a subject for restriction or limitation. It does not seem reasonable, however, for a client in one state to be forced to employ an accountant in another, merely because the client's property happens to be in that other state. There is no public interest involved, as no report will be made public within the state and no

one in the state could be damaged by relying on the accountant's work.

THE INEFFECTIVENESS OF RESTRICTIVE LEGISLATION

Forty years ago our country was filled with prosperous individual businesses locally owned, managed and financed. There came a time when they were joined and a combination of, say, ten such businesses in ten different states each having a thousand employees and each owned by 100 stockholders was formed. Each state would still have to consider the welfare of its four or five thousand citizens dependent on the local plant but its 100 stockholders would now own only one-tenth of the local plant. Over 90% of its 100 stockholders' ownership the state's jurisdiction would cease.

The state's authority over and responsibility for its thousand workmen and their families will remain unchanged and the state most properly will legislate as to compensation insurance, safety, working conditions, etc., but what can be done by the state to safeguard its 100 stock owning citizens where only 10% of what they own is in the state and 90% of the assets in the state is owned by outsiders with whose welfare the state is not directly concerned?

The state is vitally interested in the success of the combination, for that means the welfare of four or five thousand of its citizens, but it can do little to promote or foster that success, for the management and finance and most of the ownership and assets are outside its jurisdiction. The state is powerless to conserve the interests of its citizens unless the combination succeeds, and even so it is sometimes helpless. There is the classic example of the so-called whiskey trust which took over 81 plants and shut down 70 of them.

The laws of the ten states which attempt to restrict the practice of accountancy have two general characteristics. They restrict the practice of accountancy (as defined in the law) to certain of their own citizens, and they place restrictions of varying character and severity upon the practice of accountancy within the state by citizens of another state. To what extent a citizen has an inherent right to practise accountancy and whether the practice of accountancy is sufficiently affected with a public interest to warrant any restrictions I do not know, but perhaps the framers of these restrictive laws are not greatly concerned with points such as these. Possibly in many cases these general re-

strictions were devised to remedy specific evils and to solve specific problems, so, while we may disagree as to the desirability and effectiveness of the various limitations proposed by the framers of restrictive laws, we must not forget that the really important point to the profession is to discover and to define the problems and difficulties which have brought these laws into being.

We are here on somewhat difficult ground as we are trying to look through the form of these various statutes into the minds of the men who framed and proposed them. Perhaps in some cases the restrictions are dictated by what is regarded as unfair competitive methods of some of the firms carrying on an interstate practice. Perhaps in other cases there is apprehension that accountants from a large city in a neighboring state will obtain practice which it is felt belongs of right to the local practitioner. Perhaps one of the evils against which restrictive laws are aimed is the practice of competitive bidding, and it may be thought that if every acceptable accountant is sponsored in some way by the state and outsiders are prohibited from practising within the state or practise only by permission, the competitive bidding of outsiders will be stopped.

In full sympathy with such objects of legislation, I nevertheless fail to see how restriction can do anything but aggravate the situation. It would still be possible for an outside firm to open offices in the state and, as qualified men, still compete, take local work and underbid. An ethical canon against competitive bidding enforced by a grievance committee of a state society or a state body may work, slowly to be sure, to an effective end, but to get the result by legal indirection is almost hopeless. These are matters which no individual accountant can afford to ignore simply because they do not happen to touch him. If the profession is to advance our brothers' problem is our problem and bad practice anywhere affects us all.

In whatever state an accountant performs work which is an integral part of his practice, such as the audit of a branch store or one of a chain of plants owned outside the state, it would seem to be undesirable and impracticable to put obstacles in his way. This is equally true where investigations are made within a state by outside accountants for outside parties. Work of this nature must naturally be done by an outsider and if not done by an outsider would perhaps not be done at all. It seems undesirable for one state to attempt to prevent a citizen of another state from

safeguarding his interests in such manner as he may see fit, and his accountant's qualifications for work of this character is not a matter of public interest to the state in which the work is done, as no report will be made within the state. On this subject it is well to consider whether the stockholders' interest would be best conserved by having one accounting firm audit all plants and subsidiaries or by having a state licensed accountant audit them in each state.

Of the ten states which have restrictive laws, five have difficult and burdensome requirements which the outside accountant must meet before he can do his work. Some, for instance, provide for registration with the board five days before starting an engagement. Most of us have been called on at times to do work in another state on a few hours' notice. I do not think it would improve the general standing of accountants in the minds of a group of bankers if they were told that their accountants must wait five days before entering a state to carry out an investigation for some proposed financing. Five days is sometimes important in matters of this sort. In cases of financing it is frequently undesirable that the work should be known in advance of the issue. If it is a merger it is particularly unfair to the client in the state where the work is being done, as there is bound to be gossip when it is known that outside accountants are working on the books of the company. It may make negotiations difficult if the combination goes through, and it may react unfavorably to the individual company if it does not. In any case, it seems hardly proper for the accountants to divulge such information even to the board of accountancy of another state.

A student of this question, P. W. R. Glover, said five years ago to the body which is here assembled:

"It would, therefore, seem obvious that legislation for the accounting profession is very much in its experimental stage, and it behooves us to give serious and careful consideration to the subject before we are committed to a policy that might be disorganizing to public practice.

"From an examination of the five restrictive laws referred to, those of Maryland and Michigan appear to be well drawn, but I submit that the two-class basis of regulation, as at present administered, is not yet a solution of our difficulties. The principle of regulating accountancy by law in forty-eight different states, with forty-eight different types of law and administra-

tion thereof, based upon present experience would not give us the kind of regulation I believe we desire.

"One is, therefore, forced to the conclusion that regulation by states, as depicted above, is not altogether desirable unless free reciprocity for the C. P. A. in interstate business goes with it. By free reciprocity I mean that if the holder of a C. P. A. certificate finds it necessary to carry out assignments as a certified public accountant within another state, he should receive by courtesy an equivalent certificate from such state without the necessity of taking further examinations, or that the restrictive laws should be so amended as to permit him to practise as a C. P. A. in states other than his own."

I am not sure we are yet out of the experimental stage but certainly some progress has been made. Only one industrial state has adopted a restrictive law since 1926, although such limitation has been strongly urged in several others. The restrictive laws in force in the three industrial states having that type of legislation have been enforced with fairness to outside accountants, but it is impossible as yet to say whether this is due to the laws or to a fortunate choice of broad-minded men as members of the state boards. The best modern legislative tendencies are, I think, indicated in the recent amendments to the New York law.

While I will not admit that accountants in New York are any wiser or more capable than those of the rest of the country, a consideration of their experience is valuable because they have had more acute and difficult problems to face. There has been agitation for restrictive legislation in New York. This has been due, possibly, to the influx of accountants from all over the country in response to the greater demand for their services in the country's financial center. The New York State Society has made a careful study of legislative trends and tendencies for some years and the members are convinced that restrictive legislation will not give the results they desire; will not bring under control the man who should be legally recognized; will not prevent or punish improper or unprofessional conduct on the part of certified public accountants and will not protect the public against unqualified men.

Instead of throwing open the door to all in practice in order to bring them under control New York state made certain changes in the requirements for the benefit of men who had had a long and honorable experience in the profession but were

unable technically to meet some of the requirements. As a result of this a number of outstanding accountants lately qualified for the New York degree. It was thought better to keep up the standards of the C. P. A. degree in New York and to make clear the distinction between certified and non-certified public accountants in the minds of the public than to attempt to restrict the practice of accountancy.

This theory—that the degree should be safeguarded but that the practice of accountancy should be unrestricted—has been adhered to in the British Isles since the formation of the first Scottish Institute, although it has been repeatedly and severely attacked. This agitation led to the appointment of a departmental committee of the British board of trade under the chairmanship of Lord Goschen, which was charged "to consider and report whether it is desirable to restrict the practice of the profession of accountancy to persons whose names would be inscribed in a register published by law and, if so, to report on the method by which such register should be established and controlled."

This committee's report under the date of July 31, 1930, was well summed up in an editorial in *The Accountant* of August 16, 1930, "After ten meetings and the taking of evidence from seventeen societies of accountants, nine unattached practising accountants and twelve bodies representing other interests, the committee has come to the conclusion that it is not desirable to restrict the practice of the profession of accountancy to persons whose names would be inscribed in a register established by law. The members of the committee were all gentlemen able to take an unbiased view of the realities of the problem, and that they have been able to arrive at a unanimous conclusion is a result which must effectively silence further controversy for a long time to come."

A little book—beautifully written and full of wise counsel and common sense—lately published on *The Ethics of a Profession* has a chapter on branch offices, the pith of which is that it is proper in some cases to establish branch offices but in others it may be quite unethical, the distinction being difficult to define closely but quite apparent to anyone with a developed sense of ethics. I think that here a note is struck which should resound throughout the profession—that the restriction of practice which is needed is a matter of ethics and is not attainable by legislation.

There are many things outside the province of legislation. In a recent speech on public utilities Commissioner Whitsell, of the California railroad commission, recommended the gradual substitution of regulation by conference and agreement for litigation and orders. "In my judgment," says the commissioner, "the remedy to be applied does not lie in the realm of law but in that of human relations and economics."

I hope I am not extravagant in claiming that our profession is perhaps the most ethical in the world today, but neither law nor rules of ethics has brought it about or can keep it so. I suppose no professions are so hedged about by statutes and ethical constraint as law and medicine; and yet we have recently read of lawyers who were content to be ambulance chasers and vice promoters and have heard Dr. Fiske say, at the opening of a hospital in Brooklyn the other day, that "today, when commercialism is dragging the profession into the mire, Kings County hospital stands as a barrier against the destructive menace. Finance has no place in the hearts and minds of those who do the medical work in this institution."

In closing, may I leave these thoughts with you? First, to restrain from practice those who by ability and character are fitted to render good service to the client can benefit no one. Second, while holding tight to the idea of regulation as a means of improving our profession, our minds must be kept open as to what regulation really is. Third, the true professional man is he who loses himself in his work and coöperates with others for common ends.

Relation of Client and Accountant *

By Frederick H. Hurdman

The subject which has been assigned to me for discussion this afternoon covers a very wide field, and I feel constrained to confine whatever observations I have to make to some of the more important phases of the question.

There can be no disputing the fact that in relations with clients the accountant should maintain his independence, and yet some of our best clients are those who depend upon us to a very large extent for guidance in the conduct of their businesses. It requires a very fine sense of balance at all times to preserve that independence and still maintain the closest of business and, perhaps, social relationships.

The same degree of impartiality does not seem to be required in the legal profession where the lawyer is expected to serve and protect the interest of his client generally to the exclusion of every other interest. The accountant, on the other hand, is expected to deal with the facts as he finds them even though a revelation of those facts may appear to be detrimental to his clients' interests.

One thing is certain, however: the accountant must be careful to guard against putting himself in a position where he has difficulty in applying an independent and unbiased judgment to any problem which may be presented to him for consideration.

It will be my purpose to discuss some of the points of danger which, it occurs to me, lie in the path of the unwary accountant. I take it we are not so much concerned about the conduct of our clients as we are about our own, but in the course of this paper I may have occasion to refer inferentially at least to some of the shortcomings of clients.

Let us assume that an accountant is asked to call upon some previously unknown person for the purpose of an interview regarding a prospective accounting engagement. He finds that he has been recommended by a client, a business acquaintance of the man who is to be interviewed. After discussing the nature of the work to be performed and possibly the basis for charge, it would be wise to inquire whether or not any other firm of accountants had served this concern. Should it be found that another accountant numbers this concern among his clients,

* Address delivered at the annual meeting of the American Institute of Accountants, Philadelphia, Pennsylvania, September 16, 1931.

future relations, should they materialize, will best be served by a frank statement to the effect that the accountant in question is a reputable practitioner, in good standing in the profession, and that one prefers to withdraw from any consideration of this engagement so long as a fellow accountant is retained as auditor. This attitude, besides preserving self-respect, will immediately place one in the proper relation should it appear that for good reasons the existing arrangement has been or is in process of being terminated.

By this act one will have not only established independence at the start, but also have placed future relations with the client on a professional rather than a business basis. He is not likely to forget quickly the impression made at this first conference. Many firms make it a practice to communicate with the superseded firm in order that there may be no question concerning the propriety of accepting the new engagement.

Should it appear that the reason why the former arrangement is being terminated is that the accountant refused to concur in some statement which one would hesitate himself to subscribe, that information would be of great value in that it would enable one to establish a definite understanding with the client at the beginning concerning one's own views on this point. The temptation may be great to pick some flaw in the previous accountant's argument and thereby find a way to ingratiate one's self with the prospective client. However, if one values his self-respect it behooves him to make certain that the position he takes is sound, and an application of the golden rule at this point may be decidedly in order.

When it becomes apparent that the fee for the proposed engagement is a major consideration in eligibility, the accountant must be wary indeed lest he find himself in the position of a competitor bidding against a thoroughly reputable firm for an engagement which, if obtained, may be lost next year for the simple reason that someone else has bid lower. In such circumstances, if one feels that he must submit a fee, he should do so only after careful appraisal of the work to be done and consultation with the present auditors, and he should always submit a figure in excess of the fee now being paid. If all practising accountants could be persuaded to follow this procedure the subject of competitive bidding would be a thing of the past and both the accountant and client would benefit.

Having secured the engagement one must be careful not to permit the client to go too far in laying out the course. Having ascertained from him what is wanted in the way of results, it is largely up to the accountant to determine the amount of work to be done in order to produce that result. Generally one can discourage a client who wishes to direct the scope of audit by pointing out to him what in one's opinion is necessary to be done and stating the qualifications one will be required to make in the certificate or report if one's plan for the audit is not followed. The accountant and not the client is the one who must sign the certificate and be held responsible for the character and thoroughness of the audit.

In the course of audit one will find it necessary to discuss with the client certain points whereon to take issue as to the correctness of the conclusions expressed in the books of account. A restatement of the accounts in a way approved by the accountant may have the effect of producing a more favorable or unfavorable picture of the business or its operations.

Only one consideration need worry the accountant, that is, the soundness of his reasoning with relation to the problem involved. If the result produced by interpretation of the accounts be unfavorable the accountant may meet with hearty concurrence in his views on the part of the management. However, the reverse is more apt to be the case and the accountant will be called upon vigorously to defend his reasoning. If the point involved is not one clearly defined by good accounting practice, one may be confronted with quotations from sundry authors of books or articles on accounting to prove that a contrary view is tenable. These are very difficult times for the accountant. To hold firmly to his views may mean the loss of a client. It is important to be right. If one is sure of his position he can be as firm as the rock of Gibraltar with the knowledge that in most cases he will not only not lose a client but will make a more lasting one. I presume there are few accountants who have developed successful practices who can not recall with satisfaction relations with clients which promised disaster at one time but, because the accountant was right and the client wrong, developed into a complete success.

One must be very wary of expedients in the settlement of differences. In other words, one must not compromise his reputation as a trustworthy and capable accountant. Ways will be

suggested and may very well suggest themselves whereby one may think to relieve himself of responsibility by the manner in which the point under dispute is expressed. In other words, the client wins his point and the accountant's honor is "preserved" by a set of carefully chosen words. I use the word "preserved" advisedly, because that is usually what happens to one's honor; it ceases to develop and becomes a museum piece, good for little else than as a thing to remember. The accountant who yields may find himself called upon frequently thereafter to repeat this performance and may even discover that he is suggesting ways in which the real facts may be obscured.

In a recent celebrated case in the English courts the attorney general stated that the jury would be the more irresistibly driven to the conclusion that the statements in question were intended to deceive someone if they also thought that very carefully prepared phrases were made and used which would allay any suspicion or uneasiness in the minds of the ordinary prudent investor and would conceal from him the true position—phrases so carefully constructed as to enable the defendants to say that the words they used covered what they did. If the jury thought that carefully prepared phrases would prevent the ordinary man's understanding what was being done, then the fact that the phrases were constructed in the way he had indicated, in his submission, forced them to come to the conclusion that there was an intention to deceive.

What has been said about the manner in which an engagement has been secured, the negotiations concerning the fee, the scope of the audit programme and the client's relations with other accountants may have a very important bearing on the adjustments of differences in points of view or treatment of accounting questions as they arise from time to time.

If the client finds that the accountant is endeavoring to conduct himself on a high ethical plane in a distinctly professional way, and that the fee involved is incidental rather than the primary factor in the relationship, the client will exhibit a greater degree of respect for the accountant's views. In other words, through the steps mentioned he will recognize all of the attributes of a professional man. It will then be possible for the accountant, by good judgment and tact, to impress upon him his ability as an accountant.

Another important factor to be kept in mind is independence. The accountant must be free to state what he believes to be the

facts. This suggests the undesirability of any dual relationships, such as acting as auditor and at the same time holding any position of direct relationship to the client such as a fiduciary office or as a director, officer and, in some cases, even as a stockholder of the corporation audited.

Generally speaking, an accountant should not accept appointment as a director or officer of a corporation whose books and accounts he audits unless the stock of that corporation be privately owned by a limited number of persons and the public, generally, is not affected thereby. Such a corporation might be one organized by a person to control his own estate or one organized by a small group to manage a real-estate venture.

It is difficult to see wherein the relationship is improved by having the auditor also act as a director. If the accountant's judgment is desired, surely it can be obtained when required, even by attendance at directors' meetings if necessary. It is feared that too often the promoters desire the name of the accountant on the directorate to help bolster the credit and standing of the corporation in the community.

In the very nature of his calling, the accountant should command a position of respect. He is at least presumed to be honorable in his relation with the public and to be concerned with facts regardless of their effect. In such circumstances, the client may ask, what could have a more favorable effect upon a prospective investor than the inclusion of the accountant's name in the list of those selected to form the board of directors of a newly launched enterprise in the community where the accountant is well and favorably known?

It may transpire that the accountant-director has very little influence in shaping the policies of the new enterprise. In that event, at least so far as the investing public is concerned, he may find himself held equally responsible with his co-directors for acts which he thoroughly disapproves. While withdrawal from the board in such circumstances may appear to be a perfectly simple and logical remedy, nevertheless, considerable damage may ensue to the reputation of the accountant because of the reliance of others upon the fact that the accountant was identified with the management of the company's affairs, and to some extent they were influenced in the investment as a result of that knowledge.

Bankers have stated that they look with suspicion upon audited statements when it appears that the auditor or some member of

his firm is acting in the capacity of a director or officer of the concern audited. They have stated that it made some difference where the reputation of the accountant involved was of such a high character that they felt reasonably certain the dual relationship did not work harmfully. However, in justice to one's client, one should be careful not to create the slightest basis for any suspicion by the banker as to absolute independence.

This underlying feeling of suspicion apparently is not removed even though the partner in the accounting firm who is acting in the capacity of director deliberately takes no part in the audit programme. That view will be understood when it is realized that the accountant in charge of the audit might hesitate to take a contrary view of some point arising in the audit, if he knew that the director-partner had apparently given his approval at a meeting of the board. In such a case it is highly probable that approval might have been withheld if the director-partner had had presented to him the same set of facts as was discovered by the accountant in his audit. The accountant should not be hampered by any such restriction of his independence.

Even in the case of a privately owned corporation there may be circumstances which will cause the auditor's report to be exhibited to the bank, some creditor or third party interested in investment or purchase. In such a case the preservation of an independent relationship may be quite important.

In Great Britain the companies act, 1929, provides as follows under section 133:

> None of the following persons shall be qualified for appointment as auditor of a company:
> (a) a director or an officer of the company;
> (b) except where the company is a private company, a person who is a partner of or in the employment of an officer of the company;
> (c) a body corporate.

The principle behind these provisions is to ensure the independence and personal responsibility of the auditor. Paragraphs "b" and "c" appeared for the first time in the companies act, 1929. Under the 1908 act, the only persons disqualified for appointment as auditors were directors and officers of the company.

I am informed that the exception referred to in the case of a private company doubtless arises because generally the directors, with their immediate relatives and friends, are the sole

proprietors and there is no market for the shares. In other words, the public interest is very limited or practically negligible.

It would seem to me desirable that the Institute express itself on this point, either by the adoption of a new rule of professional conduct or by resolution of the membership. If the latter method be preferred, I would suggest the following preamble and resolution:

WHEREAS the relation between a client in the form of a corporation and the auditor for that corporation should be one of entire independence, and

WHEREAS it does not appear to be practicable for the auditor consistently to hold a dual relationship as auditor and executive of the corporation, and

WHEREAS the public interest and confidence will best be preserved by a complete separation of these two functions, therefore be it

RESOLVED that the maintenance of a dual relationship as director or officer of a corporation while acting as auditor of that corporation is against the best interests of the public and the profession and tends to destroy that independence of action considered essential in the relationship between client and auditor.

The propriety of an auditor's investing in the stock of companies for which he or his firm acts as auditor is a little more difficult to determine. Generally speaking, it would seem to follow logically that if he is to maintain that relationship of absolute independence he should not become interested in the stock of those companies for which he is acting as auditor.

It may be argued that the ratio of the auditor's investment to the entire amount of stock outstanding would have a bearing, and that in proportion to the size of this investment one might expect to be influenced.

At this stage it may be well to inquire what is the ratio, the amount of the accountant's investment in relation to total capital of the corporation or the amount of his investment in this particular stock in relation to his own total investments in all stocks.

As a practical matter it may be unreasonable to expect that the accountant would be willing to jeopardize his reputation and the consequent valuable goodwill developed over a period of years for the profit he might hope to realize as a result of some decision he was required to make in his audit of a company's accounts.

Certainly the auditor should not take advantage of knowledge acquired as auditor, which the public could not obtain, to secure a more favorable investment for himself. Such opportunities

might occur in reorganizations, underwritings, new issues, stock dividends and the like. Great care should be exercised that the auditor does not place himself in the position of having accepted a favor from the management by being permitted to share in some benefit before a like offer is made to the public.

It would appear that while no fixed rule can be laid down, the accountant should keep in mind the necessity at all times of preserving an independent relationship and so arranging his investments that he does not take advantage of the public nor permit any hoped-for gain in market values to influence in any degree his impartial review and presentation of the facts.

Numerous other factors entering into this relationship between client and accountant will present themselves. It will be obvious that the accountant should be careful about accepting favors from his client in the way of price reductions on merchandise sold to him, gratuities to the staff accountants actually engaged upon the audit or any consideration which might tend to place the accountant under obligation to the client.

Of course the accountant should always be a gentleman. This implies courtesy, tact and firmness. It does not imply that because the client happens to be a boor the accountant should adopt like characteristics. If it develops that the morals of the client are objectionable it may well be the part of wisdom to sever relations even though at some pecuniary loss. An immoral client may be a costly one in the long run.

Students' Department

H. P. BAUMANN, *Editor*

AMERICAN INSTITUTE EXAMINATIONS

[NOTE.—The fact that these solutions appear in THE JOURNAL OF ACCOUNTANCY should not cause the reader to assume that they are the official solutions of the board of examiners. They represent merely the opinions of the editor of the *Students' Department.*]

EXAMINATION IN ACCOUNTING THEORY AND PRACTICE—PART II

May 15, 1931, 1:30 P. M. to 6:30 P. M.

The candidate must answer all the following questions.

No. 2 (30 points):

From the data following, prepare the journal entries necessary properly to adjust the accounts for the purpose of consolidation and submit a consolidated balance-sheet, together with working papers.

The results of examinations of the books of the Kerry Dairy Company and its subsidiaries, as of June 30, 1929, were shown as follows:

Assets	Kerry Dairy Co.	City Creamery	Watson & Roan, Inc.	Newport Dairy Co.
Cash	$ 7,500	$ 4,500	$ 8,000	$ 1,500
Notes receivable	10,000		5,000	2,000
Accounts receivable	24,000	10,000	17,500	6,800
Merchandise inventories	15,000	8,000	13,000	4,000
Investments:				
City Creamery	28,000			
Watson & Roan, Inc.	52,000			
Newport Dairy Co.	30,000			
Land	11,500		7,000	
Buildings	26,000		28,000	
Plant equipment	34,000	25,000	35,000	42,000
Delivery equipment	8,000	3,000	9,000	7,000
Deficit				2,400
	$246,000	$50,500	$122,500	$65,700
Liabilities				
Notes payable	$ 15,000	$ 7,500	$ 10,000	$12,000
Accounts payable	20,000	6,200	2,700	4,200
Bonds payable	40,000		20,000	
Reserves for depreciation	35,000	6,000	18,600	9,500
Capital stock	125,000	25,000	65,000	40,000
Surplus	11,000	5,800	6,200	
	$246,000	$50,500	$122,500	$65,700

During the course of the audit, the following facts were discovered:

The holding company purchased 90 per cent. of the capital stock of the City Creamery, July 1, 1926; 80 per cent. of that of Watson & Roan, Inc., July 1, 1925, and 75 per cent. of that of the Newport Dairy Co., July 1, 1927, when this company was organized.

The investment in the City Creamery was arbitrarily increased on the books of the holding company in 1929 by a charge thereto and a credit to surplus $2,000. Except for this entry, the book value of the investment represented cost. The investment in the Newport Dairy Co. was also carried at cost. The holding company had, however, taken up its share of the profits and losses of Watson & Roan, Inc., through the investment account.

An analysis of the surplus accounts of the subsidiary companies was as follows:

	City Creamery	Watson & Roan, Inc.	Newport Dairy Co.
Balance—June 30, 1925		$15,200	
Profit—1925–1926		2,500	
Balance—June 30, 1926	$3,500	17,700	
Profit—1926–1927	2,400*	8,000*	
Balance—June 30, 1927	1,100	9,700	
Profit—1927–1928	1,500	2,700	$1,500*
Balance—June 30, 1928	2,600	7,000	1,500*
Profit—1928–1929	3,200	800*	900*
Balance—June 30, 1929	$5,800	$ 6,200	$2,400*

The inter-company accounts were as follows:

On the books of	Kerry Dairy Co.	City Creamery	Watson & Roan, Inc.	Newport Dairy Co.
Notes receivable—				
Kerry Dairy Co.		$2,000	$3,000	$5,000
Watson & Roan, Inc.				3,000
Notes payable—				
City Creamery	$2,000			
Watson & Roan, Inc.	3,000			
Newport Dairy Co.	5,000		3,000	
Accounts receivable—				
Kerry Dairy Co.		2,400	1,700	1,800
City Creamery				600
Accounts payable—				
City Creamery	2,200			
Watson & Roan, Inc.	1,600			
Newport Dairy Co.	1,500	600		

The inventories of the subsidiary companies contain goods purchased from the holding company on which the latter made a profit of 10 per cent., viz, City Creamery $3,000, and Watson & Roan, Inc. $1,200.

In June, 1929, the Newport Dairy Co. purchased plant equipment from Watson & Roan, Inc., and paid $12,000 therefor. The cost to Watson & Roan, Inc. (less depreciation) was $10,000.

The differences in inter-company accounts represent remittances in transit at the date of closing.

Solution:

ADJUSTMENTS AND ELIMINATIONS

(A)

Surplus—Kerry Dairy Company	$ 2,000	
Investment—City Creamery		$ 2,000
To reverse arbitrary write-up of investment in City Creamery.		

* Representing loss.

(B)

Notes payable	$13,000	
Notes receivable		$13,000

To eliminate inter-company notes payable and receivable.

Company	Payable	Receivable
Kerry Dairy Co.	$	$10,000
City Creamery	2,000	
Watson & Roan, Inc.	3,000	3,000
Newport Dairy Co.	8,000	
Total	$13,000	$13,000

(C)

Cash	600	
Accounts payable	5,900	
Accounts receivable		6,500

To eliminate inter-company receivables and to record inter-company cash in transit.

Company	Payables	Receivables	Cash
Kerry Dairy Co.	$	$5,900	$600
City Creamery	2,200	600	
Watson & Roan, Inc.	1,600		
Newport Dairy Co.	2,100		
Total	$5,900	$6,500	$600

(D)

Capital stock—City Creamery	22,500	
Investment in City Creamery		22,500

To eliminate the holding company's 90% interest in the capital stock ($25,000) of City Creamery.

(E)

Capital stock—Watson & Roan, Inc.	52,000	
Investment in Watson & Roan, Inc.		52,000

To eliminate the holding company's 80% interest in the capital stock ($65,000) of Watson & Roan, Inc.

(F)

Capital stock—Newport Dairy Co.	30,000	
Investment in Newport Dairy Co.		30,000

To eliminate the holding company's 75% interest in the capital stock ($40,000) of Newport Dairy Co.

(G)

Surplus—City Creamery	3,150	
Investment in City Creamery		3,150

To eliminate the holding company's 90% interest in the surplus ($3,500) of City Creamery at date of acquisition, July 1, 1926.

(H)

Surplus—Watson & Roan, Inc.	$4,960	
Investment in Watson & Roan, Inc.		$4,960

To eliminate the holding company's 80% interest in the surplus ($6,200) of Watson & Roan, Inc., at June 30, 1929. The holding company has taken up its share of the profits and losses.

In addition to the above adjustments and eliminations which are lettered for the purpose of identification in the working papers, the following adjustments should be taken up on the books of the Kerry Dairy Company:

Surplus	$ 420	
Reserve for inter-company profit in inventories		$ 420

To set aside the inter-company profit in inventories for goods sold to the following subsidiaries:

City Creamery	$3,000
Watson & Roan, Inc.	1,200
Total	$4,200
10% thereof	$ 420

Surplus	2,000	
Reserve for inter-company profit in plant and equipment		2,000

To set aside the inter-company profit in plant and equipment sold in June, 1929, to Newport Dairy Co., by Watson & Roan, Inc.

Selling price	$12,000
Cost to Watson & Roan, Inc. less depreciation	10,000
Inter-company profit	$2,000

Cash (cash in transit)	600	
Accounts receivable		600

To record the cash in transit from the following:

City Creamery	$200
Watson & Roan, Inc.	100
Newport Dairy Co.	300
Total	$600

KERRY DAIRY COMPANY AND ITS SUBSIDIARIES

Consolidated Balance-sheet, June 30, 1929

Assets

Current assets:		
Cash:		
In banks	$ 21,500	
In transit	600	
		$ 22,100

KERRY DAIRY COMPANY AND ITS SUBSIDIARIES
Consolidated Balance-sheet—Working papers, June 30, 1929

Assets	Kerry Dairy Company	City Creamery	Watson & Roan, Inc.	Newport Dairy Co.	Adjustments and eliminations: Debit	Adjustments and eliminations: Credit	Consolidated balance-sheet
Cash	$ 7,500	$ 4,500	$ 8,000	$ 1,500	$600 (C)		$ 22,100
Notes receivable	10,000		5,000	2,000		$ 13,000 (B)	4,000
Accounts receivable	24,000	10,000	17,500	6,800		6,500 (C)	51,800
Merchandise inventories	15,000	8,000	13,000	4,000			40,000
Land	11,500		7,000				18,500
Buildings	26,000		28,000				54,000
Plant equipment	34,000	25,000	35,000	42,000			136,000
Delivery equipment	8,000	3,000	9,000	7,000			27,000
Investment in City Creamery (90%)	28,000						
Eliminate holding company's write-up						2,000 (A)	
Eliminate book value at acquisition: (July 1, 1926)							
Capital stock (90% of $25,000)						22,500 (D)	
Surplus (90% of $3,500)						3,150 (G)	
Good will							350 (G)
Investment in Watson & Roan, Inc. (80%)	52,000						
Eliminate present book value:							
Capital stock (80% of $65,000)						52,000 (E)	
Surplus (80% of $6,200)						4,960 (H)	
Surplus arising through consolidation							*4,960* (G)
Investment in Newport Dairy Co. (75%)	30,000						
Eliminate book value at acquisition: (July 1, 1927)							
Capital stock (75% of $40,000)						30,000 (F)	
	$246,000	$50,500	$122,500	$63,300	$600	$134,110	$348,790

KERRY DAIRY COMPANY AND ITS SUBSIDIARIES

Consolidated Balance-sheet—Working papers, June 30, 1929—(*Continued*)

Liabilities and net worth	Kerry Dairy Company	City Creamery	Watson & Roan, Inc.	Newport Dairy Co.	Adjustments and eliminations Debit	Adjustments and eliminations Credit	Consolidated balance-sheet
Forwarded					$ 600	$134,110	
Notes payable	$ 15,000	$ 7,500	$ 10,000	$12,000	13,000 (B)		$ 31,500
Accounts payable	20,000	6,200	2,700	4,200	5,900 (C)		27,200
Bonds payable	40,000		20,000				60,000
Reserves for depreciation	35,000	6,000	18,600	9,500			69,100
Capital stock:							
Kerry Dairy Company	125,000						125,000
City Creamery		25,000					
Eliminate holding company's 90%					22,500 (D)		
Minority interest 10%							2,500 (M)
Watson & Roan, Inc.			65,000				
Eliminated holding company's 80%					52,000 (E)		
Minority interest 20%				40,000			
Newport Dairy Co.							13,000 (M)
Eliminate holding company's 75%					30,000 (F)		
Minority interest 25%							10,000 (M)
Surplus:							
Kerry Dairy Company	11,000						
Less write-up of City Creamery's investment					2,000 (A)		
Reserve for inter-company profit:							
In inventories: 10% of $4,200							420 (R)
On plant equipment							2,000 (R)
Balance—surplus							6,580 (S)
City Creamery		5,800					
Minority: 10% of present surplus							580 (M)
Eliminate holding company's 90% of $3,500 surplus at acquisition					3,150 (G)		
Surplus: 90% of $2,300 increase							2,070 (S)
Watson & Roan, Inc.			6,200				
Minority: 20% of present surplus							1,240 (M)
Eliminate holding company's 80% of present surplus					4,960 (H)		
Newport Dairy Co.				*2,400*			
Minority: 25% of present deficit							*600* (M)
Surplus: 75% of $2,400 decrease							*1,800* (S)
	$246,000	$50,500	$122,500	$63,300	$134,110	$134,110	$348,790

Notes receivable		$ 4,000	
Accounts receivable		51,800	
Inventories	$40,000		
Less—reserve for inter-company profits	420	39,580	
			$117,480
Fixed assets:			
Plant equipment	$136,000		
Less—reserve for inter-company profit	2,000		
	$134,000		
Delivery equipment	27,000		
Buildings	54,000		
Total	$215,000		
Less—reserve for depreciation	69,100		
		$145,900	
Land		18,500	
			164,400
			$281,880

Liabilities and net worth

Current liabilities:			
Notes payable		$ 31,500	
Accounts payable		27,200	
			$ 58,700
Bonds payable			60,000
Minority interest:			
Capital stock		$ 25,500	
Surplus		1,220	
			26,720
Net worth:			
Capital stock		$125,000	
Surplus		6,850	
Surplus arising through consolidation		4,610	
			136,460
			$281,880

The surplus arising through the consolidation of the accounts of Watson & Roan, Inc., of $4,960 is reduced, in the above balance-sheet by the amount of the "positive" good will arising through the consolidation of the accounts of City Creamery in the amount of $350. Authoritative opinion can be mustered, also, to support the showing of the good will of $350 in the balance-sheet, with the surplus arising through consolidation at $4,960.

Accounting Questions

[The questions and answers which appear in this section of THE JOURNAL OF ACCOUNTANCY have been received from the bureau of information conducted by the American Institute of Accountants. The questions have been asked and answered by practising accountants and are published here for general information. The executive committee of the American Institute of Accountants, in authorizing the publication of this matter, distinctly disclaims any responsibility for the views expressed. The answers given by those who reply are purely personal opinions. They are not in any sense an expression of the Institute nor of any committee of the Institute, but they are of value because they indicate the opinions held by competent members of the profession. The fact that many differences of opinion are expressed indicates the personal nature of the answers. The questions and answers selected for publication are those believed to be of general interest.—EDITOR.]

CAPITAL STOCK WITHOUT PAR VALUE

Question: The facts are that this corporation, as a result of a reorganization changed over from ordinary nominal par stock to no-par stock, securing a new charter for the reorganized company. In making the application to the state of Pennsylvania 50,000 shares no-par stock of the stated value of $1,000,000 were specified.

In addition to the no-par-value stock there was certain preferred stock of the old company outstanding which was taken over and assumed by the new company.

When the company came to issue the no-par stock it actually issued it on a basis of $25 a share stated value, issuing only about 36,000 shares. About the same time it has sold 400 shares for $25,000 and has since sold quite a lot of the other stock to employees for $25 a share. At the present time the total cash actually received from the sale of the capital stock is slightly less than $1,000,000.

The lawyer contends that the books should show the capital stock at $1,000,000 constantly, regardless of how many shares have been sold and regardless of how much money is received from the sale of the stock. He says that, as in the application to the state of Pennsylvania it was set forth that stated capital was $1,000,000 it must be maintained at $1,000,000 and no more.

I have put the following hypothetical case to him, viz.:

Suppose a company with 50,000 shares no-par stock stated in its application that the stated value of this stock was $1,000,000. It issued 20,000 shares for $1,000,000 assets. Later on it sold the remaining 30,000 shares for $1,500,000. What does the $1,500,000 constitute—stated capital or surplus available for dividends. He answered me that it represented surplus available for dividends and might be distributed as a dividend the day it was received.

I understand there have been a number of decisions in Delaware which differ from this lawyer's view but that there have been no Pennsylvania cases.

Answer No. 1: The questions as to what constitutes the stated capital of a corporation and as to whether the excess of the amount paid in against the

issuance of no-par-value stock over the stated capital is available for dividends or not are primarily matters of law.

So far as accounting opinion is concerned, the amount paid in against the issue of no-par-value stock is capital to the company, to be credited to the account "capital stock" and so shown in the company's balance-sheet, with a parenthetical notation as to the amount of the stated capital.

If, however, counsel insists on carrying the excess of the amount received for capital stock sold, over the round figure of stated capital mentioned in the application, as a separate account, it would be proper to do so, provided this excess (which in the instance given amounts to $1,500,000) is clearly earmarked in the balance-sheet as "Capital surplus, being the excess of amounts received from the sale of capital stock over the stated capital," or some similar wording, the point being, of course, that any amounts received from the sale of capital stock are of the nature of capital. The question whether or not this excess can be paid out in dividends, as already indicated, is purely a matter of law and should be left to counsel. The accountant's sole concern in these circumstances would be to have the accounts so drawn as to make the source of the dividend absolutely clear.

Answer No. 2: Our answer is predicated on certain assumptions of facts which are not clearly stated in the question, namely, that the preferred stock is par stock and that the no-par stock is all common stock.

The statement of facts shows that a certain Pennsylvania corporation, in making application for stock authorization, specified its proposed stock issue as "50,000 shares no-par stock of the stated value of $1,000,000."

This we understand to mean that the stated capital value of 50,000 shares could never exceed $1,000,000. Until such time, however, as the amount of capital received had reached $1,000,000 and the number of shares issued had reached 50,000, it would be correct to show the actual number of shares outstanding at the amount received for them. The lawyer whose contention is contrary might be asked what asset serves to increase the capital from the amount actually received to $1,000,000.

In the hypothetical case presented, we are of the opinion that the amount of capital received in excess of the stated capital of $1,000,000, properly would be credited to capital surplus and probably might not be distributed as cash dividends without violating the Pennsylvania corporation statutes. Provided the corporation in question is a Pennsylvania corporation, it does not seem necessary to search for support on this point beyond the Pennsylvania corporation statute, which reads as follows:

"No corporation having shares without nominal or par value, issued under the provisions of this act, shall declare or pay any dividend out of capital or out of anything except net profits or surplus earnings."

CONTINGENT LIABILITIES ON BALANCE-SHEET

Question: We are asking that you give us an opinion with respect to the handling of certain items in the balance-sheet outlined:

The company is a manufacturer. Its annual business approximates $10,000,000. The current asset position is $4,000,000 current to pay $1,000,000 current. The total assets are $11,500,000 to pay $3,400,000, which includes a bond issue of approximately $2,200,000.

This is a consolidated statement and includes the results of a subsidiary with a volume of $75,000 a year. This subsidiary sells approximately $40,000 in instalment sales. The instalment sales contracts are discounted, primarily for the purpose of getting the benefit of the collection organization of the discount house rather than for financial assistance, as the balance-sheet readily indicates.

Of these $40,000 sales, $23,000 were outstanding at the date of the balance-sheet. The "performance record" with respect to these is abnormally high. The character of the merchandise is such that in the event of a default there can be only a nominal loss, as there is no depreciation involved because of the nature of the merchandise and on those contracts on which a small number of payments have been made the repossession frequently results in a profit.

We stress, first, the strong financial position of the company; second, the small percentage of sales with respect to total volume of business; third, the small amount of contracts discounted in proportion to the total assets at the balance-sheet date and, fourth, the nominal loss, if any, involved in repossession.

The point on which we desire an opinion is whether in view of these circumstances the accountant should show in some form on the balance-sheet the contingent liability or whether in view of the comparatively small amounts involved this should be disregarded.

Answer: In our opinion, even though the contingent liability be merely a small amount in comparison with the total volume of business and there is little or no prospect of actual loss, the best practice calls for a notation of the contingent liability on the balance-sheet. We believe also that banks to which the balance-sheet may be submitted for credit purposes would expect the contingent liability to be shown, even though it be a relatively small amount.

FUNDS OF AN ENDOWED COLLEGE

Question: I have had submitted to me a balance-sheet of an endowed college. The endowment is in the form of a trust fund from which the college receives the income only and the college has no control over the principal of the fund. The balance-sheet submitted shows:

Assets:	
Trust fund	xxxx
Plant and equipment	xxxx
Total assets	xxxx
Liabilities:	
Trust fund	xxxx
Plant and equipment	xxxx
Total liabilities	xxxx

You will note from the above that the trust fund over which the college has no control whatever is shown as an asset and also shown as a liability, and that the plant and equipment which the college owns is shown as an asset and also as a liability. It is pretty hard for me to see that a trust fund of very substan-

tial proportions represented by gilt-edge securities, which are not in possession of the college, can be an asset belonging to the college, and I fail to see how such securities in the hands of a trustee can be a liability of the college. Neither can I understand how the plant and equipment can be at the same time both an asset and a liability.

I am free to confess that statements of endowed colleges in the west are few and far between and that we practitioners of the west seldom come in contact with them.

My own idea of the situation is that the trust fund is not an asset of the college, neither is it a liability, and it should not be shown upon the balance-sheet at all, except in a subsidiary statement to show that the trust fund has been preserved and is intact properly managed. In the income account the income from the trust fund should be shown.

Further, the plant and equipment is of course an asset subject to depreciation, but in no circumstances could it be a liability for which the college is responsible.

Answer No. 1: In the example submitted there are two peculiarities. It is somewhat unusual to establish a trust fund, the principal of which is not under the control of the board of trustees. Occasionally, however, endowment is given to an institution with the provision that the investment of the securities is to be handled by an agency, such as a trust company, not directly connected with the institution. If the trust fund in question is irrevocable and the income will be paid to the college forever, it is quite proper for the securities to be shown as an asset in the balance-sheet at market value at date of gift.

The second peculiarity is that there are no operating assets in the balance-sheet, such as current cash, receivables, etc. This I do not understand.

The two funds shown under liabilities are not liabilities. They represent the net worth of the institution and correspond to capital stock and surplus in a commercial enterprise. Strictly speaking there should be four self-balancing sections in a fund balance-sheet—endowment funds, plant funds, expendable funds and current funds. The balancing figure in each section will be the fund account or the net worth of that section. The sum of these four items of net worth is the net worth of the institution. Sectional balances are maintained for various reasons, one of which is to prevent the misuse of endowment funds without appearing in the balance-sheet. All of this is explained in Arnett's book, *College and University Finance*, although Mr. Arnett only advocates the keeping of three sections.

Incidentally, it is an accepted principle in college and university accounting that no depreciation need be taken on educational plant. The theory is that the educational buildings and equipment to be used in educating students of a particular generation should be financed by gift and not through increased tuition fees.

Answer No. 2: In our opinion the financial report of the endowed college should contain:

(a) Balance-sheet showing the plant and equipment asset, a properly denominated surplus and a depreciation reserve.
(b) A separate statement in respect of the trust fund.

This assumes that such accounts in no way conflict with the terms of the deed of trust. Endowment is commonly understood to mean not the buildings or sites but the providing of a fixed revenue for support. If this is an executed trust wherein the limitations of the equitable interest are completely and finally stated in the deed of trust (perhaps in even so remote a contingency as that the college may cease to exist) the college should conform its financial reports to the terms stated.

The plant and equipment, if legally owned by the college, presumably arose either from a gift or from application of income. In either case the college would have something in the nature of a surplus—akin to paid-in or to earned—which would decrease as the relative asset depreciated or was exhausted.

Out of the profusion of law and court decisions on trusts we gather that the fund is not an ordinary asset of the college. The beneficiary has equitable title in the trust fund and is, in fact, a qualified owner of the fund, and the equitable estate is property in a limited sense, but the trustees have legal title to the trust fund and are absolute owners. Ownership implies some power of disposal—which the college presumably has not. The beneficiary has no right to possession of the trust securities: its right is in the trust—not of it. The word "endow" carries rather the idea of a gift; the donor usually gives the income, which is a right in property—not the property itself. The trustee is obligated to keep accurate accounts and the beneficiary has the right to inspect such accounts.

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